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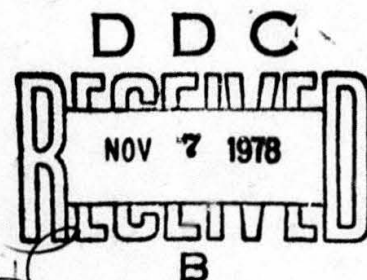
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Aerodynamic Characteristics of 2-, 3-, and 4-, Caliber Tangent-Ogive Cylinders with Nose Bluffness Ratios of 0.00, 0.25, 0.50, and 0.75 at Mach Numbers from 0.6 to 4.0

SYSTEMS ANALYSIS AND SIMULATION BRANCH
GUIDED WEAPONS DIVISION

JANUARY 1977

FINAL REPORT FOR PERIOD MARCH 1971 TO FEBRUARY 1976



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A series of wind tunnel tests were conducted using a parametric family of 2-, 3-, and 4-caliber hemisphere-tangent ogive cylinders with variations in midsection fineness ratios of 5, 7, 9, and 11 and nose bluntness variations of $R_N/R_B = 0, 0.25, 0.50, 0.75$ over a Mach number regime of $M = 0.6 \rightarrow 4.0$. These data should be useful in preliminary design studies requiring bodies with bluff noses for radomes or optical lenses. Data were also obtained at selected test conditions for other nose configurations which included three		

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Item 20 (Concluded) 2.25-caliber tangent ogives ($R_N/R_B = 0.00, 0.375, 0.575$), one 2.5-caliber tangent ogive, two 2.25-caliber power series noses, and a hemispherical nose.

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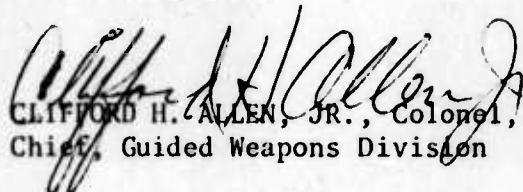
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PREFACE

This report documents a series of wind tunnel tests conducted at Arnold Engineering Development Center for the Air Force Armament Laboratory, Armament Development and Test Center, Eglin Air Force Base, Florida 32542, under Projects 2069 and 670E from March 1971 to February 1976. The effort was jointly sponsored by the Air Force Armament Laboratory (DLMA), the Flight Dynamics Laboratory, and the Army Missile Command. Individuals who have contributed significantly to this project are Messrs. E. G. Allee, (ARO), John Jordan (ARO), and George Landingham (MICOM).

This report has been reviewed and is approved for publication.

FOR THE COMMANDER


CLIFFORD H. ALLEN, JR., Colonel, USAF
Chief, Guided Weapons Division

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LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS

A_b	AB	Model base area, 1.131 in ²
α	ALPHA	Model angle of attack, deg
β	BETA	Model sideslip angle, deg
BFR		Model cylindrical fineness ratio (length of midbody + afterbody)/D
C_{A_F}	CAF	Forebody axial force coefficient, $C_A - C_{A_b}$
C_{A_f}		Calculated skin friction coefficient
C_{A_b}		Base axial force coefficient $\frac{(P_\infty - P_b) A_b}{Q_\infty S}$
C_{A_p}		Forebody pressure axial force coefficient, $C_{A_F} - C_{A_f}$
C_{A_T}	CAT	Total axial force coefficient, total axial force/ $Q_\infty S$
C_ℓ	CLL	Rolling moment coefficient, rolling moment/ $Q_\infty S L$
C_m	CLM	Pitching moment coefficient, pitching moment/ $Q_\infty S L$
C_n	CLN	Yawing moment coefficient, yawing moment/ $Q_\infty S L$
C_{m_α}		Slope of the C_m versus α curve at zero alpha, $\frac{dC_m}{d\alpha}$ per degree, calculated from a second degree least squares curve fit from alphas of -1 to 1 degree
C_N	CN	Normal force coefficient, normal force/ $Q_\infty S$
C_{N_α}		Slope of the CN versus alpha curve at zero alpha, C_{N_α} per degree, calculated from a second degree least squares curve fit from alphas of 0.1 to 1 degree
CONFIG		Model configuration designation
C_y	CY	Side force coefficient, side force/ $Q_\infty S$
D		Model base diameter, 1.2 in
PART	PART	Data part number

LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS (CONCLUDED)

L_N		Length of tangent ogive nose with zero bluntness
L		Reference length for pitching, yawing, and rolling moments, and Reynolds number, respectively, 1.2 in
L_N/D		Nose fineness ratio
M_∞	MACH	Free-stream Mach number
P_b		Average of base pressures
R_e/FT		Free-stream unit Reynolds number, per foot
R_N/R_B		Model spherical nose radius ratioed to the model base radius
S		Reference area for aerodynamic coefficients, 1.131 in ²
S_w		Model total wetted surface area, in ²
T_0		Tunnel stilling chamber temperature, °R
$X_{CP/L}$	XCP	Model center-of-pressure location measured in calibers aft of the moment reference point (negative aft), C_m/C_N

SECTION I

INTRODUCTION

↙ This report summarizes wind tunnel test data on various body alone configurations which provide a data matrix for bluff and pointed bodies of revolution with systematic variations in nose bluntness, nose fineness ratio, and cylinder afterbody fineness ratio. Modular model components were used to obtain static stability and drag data, with emphasis on the effect of nose bluntness on drag. Although data is included for tangent ogive noses of fineness ratio 2, 2.25, 2.5, 3.0, and 4, the nose fineness ratios of 2, 3, and 4 calibers include a systematic variation in nose bluntness ratios (R_N/R_B) of 0.00, 0.25, 0.50, and 0.75 on cylindrical midsections of 5, 7, 9, and 11 calibers. A 1-caliber cylindrical afterbody (AI7) is used with all configurations in this report. ↘

SECTION II

APPARATUS

1. Wind Tunnel

The tests were conducted in the AEDC PWT/1T, and VKF/A continuous flow test facilities at the Arnold Engineering Development Center. The (1T) is a 12-inch-square perforated test section. The 40-inch supersonic test facility utilizes a solid wall test section. Detailed descriptions of the tunnels are given in Reference 1 and typical model installations are shown in Figures 1 and 2.

2. Test Articles

The test articles consisted of interchangeable nose, midsection, and afterbody configurations: 20 nose configurations, 4 cylindrical midsections of fineness ratio ranging from 5 to 11 and a 1-caliber cylindrical afterbody configuration as shown in Figures 3 and 4. Nose fineness varied from 1 to 4 calibers. Two-, 3- and 4-caliber tangent ogive noses (N14 through N25) were truncated and hemispherical nose caps added to provide three bluntness variations ($R_N/R_B = 0.25, 0.50, 0.75$). Grit or other means of fixing transition were not used to eliminate the drag increment due to the trip and also incremental drag changes resulting from loss of the grit during tunnel operations.

Although only a 1-caliber cylindrical afterbody is considered in this report, various fin configurations were utilized in previous transonic tests (References 2, 3, and 4), which include data for body-cruciform fin configurations with noses N10, N13, and N14. Scale effects utilizing a larger body-fin configuration in the 4T test facility are shown in Reference 5.

A typical assembly of model components is shown in Figure 4. The cylindrical midsections and noses were fabricated from stainless steel (type 303) with a 32-microinch surface finish. Model configuration identifications are shown in Table 1.

3. Instrumentation PWT/1T Test Facility

The internal balance used to measure the model aerodynamic loads in the (1T) test facility is shown in Figure 5. Base pressures were measured with two differential pressure transducers. Angle of attack measurements were corrected for support system and balance deflections.

4. Instrumentation VKF/A Test Facility

Two internal strain gage balances were used to measure the model

TABLE 1. MODEL CONFIGURATION IDENTIFICATION

Model Component	Model Component Length (Caliber)	Type	Nose Bluffness Ratio R_N/R_B
A17	1	Cylinder	----
M5, M7, M9, M11	5, 7, 9, 11	Cylinder	----
N10	0.5	Tangent Ogive	1.00
N13	1	Tangent Ogive	0.00
N14	2	Tangent Ogive	0.00
N15	2	Tangent Ogive	0.25
N16	2	Tangent Ogive	0.50
N17	2	Tangent Ogive	0.75
N18	3	Tangent Ogive	0.00
N19	3	Tangent Ogive	0.25
N20	3	Tangent Ogive	0.50
N21	3	Tangent Ogive	0.75
N22	4	Tangent Ogive	0.00
N23	4	Tangent Ogive	0.25
N24	4	Tangent Ogive	0.50
N25	4	Tangent Ogive	0.75
N26	2.25	Tangent Ogive	0.00
N27	2.25	Tangent Ogive	0.575
N28	2.5	Tangent Ogive	0.00
N29	2.25	Tangent Ogive	0.375
N30	2.25	Power Series ⁽¹⁾	----
N31	2.25	Power Series ⁽²⁾	----
		(1) N30 Power Series Nose $Y = 0.6(X/2.7)^{0.5}$ (2) N31 Power Series Nose $Y = 0.6(X/2.7)^{0.33}$	

aerodynamic loads in the VKF/A wind tunnel test facility (Figures 6 and 7). The balance shown in Figure 6 was used in the initial test entry (Part Numbers 1 through 247). The balance shown in Figure 7 was used for the second test entry (Part Numbers 248 through 338).

Base pressures were measured with three differential pressure transducers and averaged by the use of fast response pressure transducers located near the model which allowed base static pressure data to be obtained during a continuous pitch sweep. Several pitch-pause sweeps were compared with continuous sweeps to insure that the inherent lag in the base pressure orifice and tubing did not degrade the data.

Angle of attack measurements were corrected for support system and balance deflections. Seventy mm Schlieren photographs were obtained for most configurations at angle of attack increments of approximately 4 degrees. Typical photographs are shown in Figure 8.

SECTION III

TEST DESCRIPTION

1. Test Procedures and Conditions

During each data run, the model angle of attack was varied while the roll angle and Mach number were held constant.

Static force data were obtained at angles of attack from -6 to +15 degrees. The transonic tests were conducted at Mach numbers of 0.6, 0.8, 1.0, 1.2, and 1.5. Nominal test conditions were stagnation temperature varied from 150 to 200°F, total pressure varied from 19.3 to 20.7 psia, and dynamic pressure varied from 3.82 to 8.85 psia as Mach number varied from 0.6 to 1.5, respectively. The supersonic tests were conducted at Mach numbers of 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, and 4.5 with the major portions of the data at Mach numbers 1.5, 2.0, 3.0, and 4.0. Nominal test conditions were stagnation temperature 120°F, total pressure varied from 6.5 to 28.0 psia, and dynamic pressure varied from 2.80 to 1.37 psia as Mach number varied from 1.5 to 4.5, respectively.

The moment reference location for all configurations was the nose-body juncture of the model as shown in Figure 4. Sign conventions are shown in Figure 9.

The variation of nominal Reynolds number with Mach number is shown in Figure 10 for the PWT/1T and VKF/A test facilities. The difference in the test Reynolds numbers between the transonic and supersonic test facility should be noted in the comparison of data results at $M_\infty = 1.5$. The (1T) test facility does not have a variable density capability. The unit Reynolds number used in the supersonic test phase was $R_e/ft = 1.8 \times 10^6$ for all Mach numbers.

2. Data Uncertainties (Transonic Test Phase)

Data accuracy is affected by uncertainties in tunnel conditions and balance measurements. The random measurement errors are used to provide a measure of the uncertainty in the data measurements. The systematic measurement errors (bias) were assumed to be negligible for the transonic test phase. The table shown below provides the data uncertainties, assuming a 95 percent confidence level. The precision of setting and maintaining angle of attack is estimated to be ± 0.1 degree. The methods used to calculate the uncertainties are given in References 4 and 5.

UNCERTAINTY \pm [(1T) TRANSONIC TEST PHASE]

Measured Coefficient Value

M	ΔC_N	ΔC_m	ΔC_y	ΔC_n	ΔC_l	C_{A_T}	C_{A_F}
0.6	0.03	0.03				0.03	
0.8	0.02	0.02				0.02	
1.0	0.02	0.02				0.02	
1.2	0.01	0.01				0.01	
1.5	0.01	0.01				0.01	

3. Data Uncertainties (Supersonic Test Phase)

The general procedure used to calculate the data uncertainty is the same as that used in the transonic test phase. The precision of setting and maintaining angle of attack is estimated to be ± 0.1 degree. The data uncertainties shown in the tables below include both systematic measurement errors (bias) and random error measurements. Two separate tables are provided for the two test entries which utilized two different internal six-component strain gage balances.

UNCERTAINTY \pm [(A), PART NUMBERS 1 THROUGH 247]

Measured Coefficient Value

M_∞	ΔM_∞	ΔC_N	ΔC_m	ΔC_y	$\Delta C_{m'}$	ΔC_ℓ	ΔC_{A_T}	C_A
1.5	0.020	0.016	0.080	0.010	0.049	0.003	0.006	0.020
2.0	0.020	0.016	0.083	0.010	0.051	0.003	0.007	0.014
3.0	0.021	0.020	0.101	0.012	0.061	0.003	0.008	0.010
4.0	0.020	0.028	0.140	0.017	0.085	0.005	0.011	0.012
4.5	0.018	0.032	0.068	0.019	0.044	0.005	0.013	0.014

UNCERTAINTY \pm [(A), PART NUMBERS 248 THROUGH 338]

Measured Coefficient Value

M_{∞}	ΔM_{∞}	ΔC_N	ΔC_m	ΔC_y	$\Delta C_{\dot{m}}$	ΔC_{ℓ}	ΔC_{A_T}	ΔC_A
1.5	0.020	0.013	0.064	0.013	0.064	0.003	0.010	0.021
2.0	0.020	0.016	0.066	0.013	0.066	0.003	0.010	0.016
3.01	0.021	0.016	0.064	0.016	0.064	0.003	0.012	0.014
4.00	0.020	0.022	0.088	0.022	0.088	0.005	0.016	0.017

4. Part Numbers for Specific Configurations in Tabulated Data

Tabulation data for the transonic and supersonic test phases are listed in Appendices A and B. Table 2 may be used to determine the part number for a specific configuration and Mach number. The part numbers are listed consecutively in the appendices for each test phase. Each part includes a sequence of angles of attack at a given Mach number.

TABLE 2. PART NUMBER SUMMARY FOR TRANSONIC AND SUPERSONIC TEST PHASES

Nose Configuration	Midsection/Afterbody	(1T) PART NUMBERS					(A) PART NUMBERS						
		M_∞					M_∞						
		0.6	0.8	1.0	1.2	1.5	1.5	2.0	2.5	3.0	3.5	4.0	4.5
10	M5 A17						264	95		313			
13	M5 A17						268	96		314			
14	M5 A17	100	101	104	105	106	269	97		315			
15	M5 A17	114	113	112	110	109	270	98		316			
16	M5 A17						271	99		317			
17	M5 A17	117	118	119	120	121	272	100		318			
18	M5 A17	131	132	133	134	135	273	101		319			
19	M5 A17	144	143	140	139	138	274	102		320			
20	M5 A17	145	148	149	150	151	275	103		321			
21	M5 A17	173	176	177	155	154	276	104 ²		322			
22	M5 A17	170	169	168	166	167	377	105 ²		182/323			
23	M5 A17	180	181	184	185	186	278	106		324			
24	M5 A17	193	192	191	190	189	279	107		325			
25	M5 A17	196	197	198	201	202	280	108		326			
26	M5 A17						6/7	309/110	57	129/312	119	216	208
27	M5 A17						8/9	112	58	124	122	213	211
28	M5 A17							109					
29	M5 A17						281	306		327			
30	M5 A17						282	307		328			
31	M5 A17						283	308		329			
10	M7 A17						33	79		148		236	
13	M7 A17						34	80		149		237	
14	M7 A17						35	81		150		238	
15	M7 A17						36	82		151		239	
16	M7 A17						37	83		152		240	
17	M7 A17						38	84		153		241	
18	M7 A17						39	85		154		242	
19	M7 A17						40	86		155		243	
20	M7 A17						41	87		156		244	
21	M7 A17						42	88		157		245	
22	M7 A17						43	89		158		246	
23	M7 A17						44	90		159		247	
24	M7 A17						45	91		160			
25	M7 A17						46	92		161			
28	M7 A17						47	93		162			
10	M9 A17						14	64		133		221	
13	M9 A17						15	65		134		222	
14	M9 A17	35	36	37	39	40	16	66		135		223	
15	M9 A17	47	46	45	44	43	17	67		136		224	
16	M9 A17	50	51	52	53	54	18	68		137		225	
17	M9 A17	65	64	63	61	57	19	69		138		226	
18	M9 A17	68	69	70	71	72	21	70		139		227	
19	M9 A17	79	78	77	76	75	22	71		140		228	
20	M9 A17	84	85	86	87	90	28	72		141		229	
21	M9 A17	97	96	95	94	93	24	73		142		230	
22	M9 A17	3	4	5	6	7	25	74	117	143		231	
23	M9 A17	18	19	20	21	22	26	75		144		232	
24	M9 A17	32	31	30	29	25	27	76		145		233	
25	M9 A17	15	14	13	12	11	23	77		146		234	
26	M9 A17						10	62/305	115	180/333		219/334	
27	M9 A17						12	65	116	132		220	
28	M9 A17						32	78		147		235	
29	M9 A17						286	289		330		335	
30	M9 A17						285	388		331		336	
31	M9 A17						284	284		332		337	
10	M11 A17						249/49	51		163		338	
13	M11 A17							53		164			
14	M11 A17						251	54/290		165			
15	M11 A17						252	291		166			
16	M11 A17						253	292		167			
17	M11 A17						254	293		168			
18	M11 A17						255	294		169			
19	M11 A17						256	295		170			
20	M11 A17						257	296		176			
21	M11 A17						258	297		172			
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25	M11 A17						262	302		171			
26	M11 A17									178			
27	M11 A17									179			
28	M11 A17									177			

Note:

1. The Reynolds number used in the supersonic test phase (A) was

 $Re/Ft = 1.8 \times 10^6$ with the following exceptions.

Part No	Config	M_∞	$Re/Ft \times 10^6$
181	M22N5A17	3.0	3.7
183			1.1
184			1.3

2. Roll attitude = 180 degrees

SECTION IV

DATA

1. Tabulated Data

The appendices include tabulated force and moment data for all nose-cylinder body alone configurations used in the transonic and supersonic test phases. Due to the extensive data included in this report, data plots are not included for all configurations. Plotted data for the transonic test phase are included in Reference 7. All of the tabulated data in both appendices are shown for nominal zero roll angle and zero sideslip angle unless noted otherwise.

2. Transonic Data

All transonic data obtained in the (1T) test facility are included in Appendix A. The transonic data includes only 2-, 3-, and 4-caliber tangent ogive noses (N14 through N25) on midsections (M5 and M9). All configurations included the one-caliber afterbody (A17).

For increasing nose bluntness, the center of pressure is moved downstream on the model and the forebody axial force coefficient is also increased. The effect of increasing nose fineness ratio is to move the center of pressure upstream and also to decrease the forebody axial force coefficient at Mach numbers 1.0, 1.2, and 1.5, with minimal effect at Mach numbers of 0.6 and 0.8. Increasing body midsection fineness ratio from 5 to 9 does not significantly affect C_N for Mach numbers of 0.6 to 1.5, but does increase the forebody axial force coefficient.

3. Supersonic Data

The major portion of the supersonic data was also obtained for the 2-, 3-, and 4-caliber tangent noses and midsection including 5-, 7-, 9-, and 11-caliber lengths; in all cases the 1-caliber afterbody was included. In addition, the supersonic test phase includes data at selected test conditions for a hemisphere nose (N10), 2.25-caliber tangent ogive noses ($R_N/R_B = 0.00, 0.375, 0.575$), 2.5-caliber tangent ogive nose (N28), and two 2.25-caliber power series noses (N30 and N31). Table 3 provides a summary of forebody axial force coefficient, normal force coefficient slope, and pitching moment coefficient slope for all configurations. Plotted data for the forebody axial force coefficients, normal force coefficient slope, pitching moment coefficient slope, and center of pressure are shown in Figures 11 through 26 for the 2-, 3-, and 4-caliber noses on a 9-caliber midsection and 1-caliber afterbody.

TABLE 3. SUMMARY TABLE OF C_{A_F} , C_{N_α} , AND C_{m_α} FOR SUPERSONIC TEST PHASE
(a) $M_\infty = 1.5$

Nose Config	MIDSECTION-AFTERBODY											
	M5 A17				M7 A17				M9 A17			
	C_{A_F}	C_{N_α} /Deg	C_{m_α} /Deg		C_{A_F}	C_{N_α} /Deg	C_{m_α} /Deg		C_{A_F}	C_{N_α} /Deg	C_{m_α} /Deg	
10	0.743	0.036	0.049		0.777	0.045	0.010		0.770	0.050	-0.033	
13	0.552	0.035	0.053		0.568	0.045	0.011		0.581	0.049	-0.027	
14	0.250	0.044	0.034		0.274	0.049	0.018		0.278	0.050	0.010	
15	0.265	0.043	0.039		0.279	0.048	0.023		0.272	0.050	0.013	-0.131
16	0.293	0.044	0.029		0.312	0.049	0.018		0.303	0.050	0.010	-0.092
17	0.423	0.044	0.025		0.426	0.047	0.014		0.425	0.050	0.006	-0.108
18	0.160	0.043	0.051		0.178	0.048	0.043		0.149	0.049	0.029	-0.108
19	0.169	0.043	0.052		0.191	0.048	0.034		0.173	0.049	0.030	-0.055
20	0.244	0.043	0.053		0.257	0.048	0.035		0.233	0.049	0.027	-0.056
21	0.405	0.044	0.039		0.426	0.048	0.030		0.422	0.049	0.020	-0.036
22	0.109	0.042	0.069		0.128	0.048	0.054		0.116	0.048	0.046	-0.095
23	0.136	0.042	0.066		0.149	0.047	0.053		0.140	0.048	0.046	
24	0.225	0.042	0.065		0.228	0.048	0.047		0.226	0.048	0.043	-0.028
25	0.394	0.043	0.061		0.408	0.048	0.044		0.391	0.049	0.036	-0.014
26	0.213	0.047	0.035						0.304	0.051	-0.003	
27	0.296	0.045	0.040						0.311	0.049	0.015	
28					0.212	0.049	0.027		0.203	0.050	0.022	
29	0.245	0.043	0.037						0.282	0.051	-0.029	
30	0.183	0.042	0.031						0.232	0.047	-0.005	
31	0.208	0.043	0.037						0.229	0.049	-0.027	

TABLE 3. SUMMARY TABLE OF C_{AF} , $C_{N\alpha}$, AND $C_{m\alpha}$ FOR SUPERSONIC TEST PHASE (CONTINUED)

(b) $M_\infty = 2.0$

Nose Config	MIDSECTION-AFTERBODY											
	M5 A17			M7 A17			M9 A17			M11 A17		
	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg
10	0.831	0.049	-0.005	0.839	0.049	-0.005	0.849	0.049	0.006	0.848	0.050	-0.009
13	0.602	0.053	-0.017	0.602	0.054	-0.028	0.614	0.054	-0.018	0.608	0.054	-0.025
14	0.263	0.057	0.011	0.263	0.058	-0.000	0.268	0.058	0.005	0.274	0.057	0.005
15	0.274	0.056	0.007	0.276	0.057	-0.001	0.278	0.056	0.006	0.287	0.057	-0.040
16	0.341	0.055	0.005	0.339	0.056	-0.003	0.347	0.054	0.006	0.358	0.055	-0.036
17	0.513	0.053	-0.001	0.511	0.054	-0.011	0.524	0.053	-0.003	0.521	0.055	-0.059
18	0.156	0.055	0.034	0.161	0.057	0.018	0.170	0.056	0.023	0.180	0.056	-0.028
19	0.180	0.054	0.028	0.183	0.056	0.014	0.188	0.055	0.019	0.196	0.055	-0.037
20	0.283	0.053	0.026	0.289	0.054	0.014	0.295	0.053	0.018	0.304	0.052	-0.026
21	0.507	0.051	0.017	0.504	0.053	0.007	0.511	0.052	0.011	0.522	0.053	-0.041
22	0.119	0.053	0.054	0.124	0.054	0.037	0.130	0.053	0.042	0.135	0.054	-0.024
23	0.149	0.052	0.049	0.151	0.053	0.033	0.154	0.053	0.037	0.178	0.054	-0.040
24	0.267	0.051	0.045	0.266	0.052	0.031	0.277	0.052	0.032	0.282		
25	0.477	0.051	0.034	0.477	0.053	0.022	0.487	0.052	0.026	0.500		
26	0.224	0.056	0.016				0.239	0.057	0.020			
27	0.354	0.054	0.008				0.371	0.054	0.017			
28	0.197	0.056	0.023	0.202	0.057	0.012	0.206	0.056	0.016			
29	0.283	0.053	0.032				0.286	0.057	-0.026			
30	0.195	0.053	0.026				0.203	0.058	-0.035			
31	0.256	0.051	0.038				0.262	0.056	-0.029			

TABLE 5. SUMMARY TABLE OF C_{AF} , $C_{N\alpha}$, AND $C_{m\alpha}$ FOR SUPERSONIC TEST PHASE (CONTINUED)

(c) $M_\infty = 3.0$

Nose Config	MIDSECTION-AFTERBODY											
	M5 A17			M7 A17			M9 A17			M11 A17		
	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg
10	0.919	0.044	-0.020	0.902	0.048	-0.051	0.911	0.051	-0.078	0.916	0.044	-0.097
13	0.599	0.052	-0.027	0.587	0.055	-0.057	0.595	0.058	-0.080	0.600	0.059	-0.098
14	0.244	0.060	0.006	0.235	0.062	-0.029	0.242	0.064	-0.043	0.246	0.065	-0.055
15	0.260	0.057	0.004	0.253	0.061	-0.037	0.258	0.063	-0.061	0.262	0.065	-0.082
16	0.363	0.052	-0.002	0.352	0.056	-0.040	0.359	0.058	-0.064	0.363	0.060	-0.088
17	0.570	0.047	-0.009	0.561	0.052	-0.046	0.566	0.054	-0.071	0.573	0.056	-0.093
18	0.150	0.057	-0.040	0.143	0.062	0.000	0.150	0.063	-0.006	0.151	0.064	-0.023
19	0.178	0.053	0.028	0.170	0.059	-0.013	0.178	0.062	-0.037	0.181	0.063	-0.058
20	0.316	0.048	0.022	0.307	0.053	-0.017	0.312	0.056	-0.042	0.318	0.058	-0.064
21	0.582	0.046	0.008	0.567	0.050	-0.026	0.575	0.053	-0.050	0.579	0.054	-0.073
22	0.114	0.055	0.066	0.108	0.059	0.034	0.115	0.060	0.031	0.120	0.061	0.013
23	0.150	0.050	0.055	0.143	0.056	0.013	0.150	0.059	-0.006	0.153	0.060	-0.024
24	0.297	0.046	0.045	0.288	0.052	0.006	0.295	0.054	-0.016	0.297	0.056	-0.039
25	0.549	0.046	0.037	0.537	0.050	-0.008	0.544	0.052	-0.029	0.550	0.054	-0.051
26	0.203	0.060	-0.004				0.223	0.063	-0.027	0.214	0.065	-0.050
27	0.378	0.050	-0.012				0.390	0.057	-0.061	0.391	0.058	-0.081
28				0.178	0.062	-0.013	0.185	0.064	-0.025	0.190	0.065	-0.040
29	0.275	0.054	0.006				0.282	0.057	-0.033			
30	0.174	0.056	0.004				0.185	0.059	-0.038			
31	0.260	0.051	0.013				0.269	0.055	-0.029			

TABLE 3. SUMMARY TABLE OF C_{AF} , $C_{N\alpha}$, AND $C_{m\alpha}$ FOR SUPERSONIC TEST PHASE (CONCLUDED)

(d) $M_\infty = 4.0$

Nose Config	MIDSECTION-AFTERBODY											
	M5 A17			M7 A17			M9 A17			M11 A17		
	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg	C_{AF}	$C_{N\alpha}$ /Deg	$C_{m\alpha}$ /Deg
10				0.911	0.041	-0.038	0.917	0.044	-0.055	0.932	0.045	0.082
13				0.571	0.052	-0.051	0.571	0.055	-0.069			
14				0.221	0.061	-0.040	0.227	0.064	-0.060			
15				0.240	0.057	-0.041	0.245	0.060	-0.063			
16				0.351	0.050	-0.040	0.351	0.052	-0.059			
17				0.570	0.045	-0.038	0.573	0.047	-0.057			
18				0.131	0.063	-0.017	0.140	0.065	-0.031			
19				0.160	0.056	-0.022	0.170	0.060	-0.046			
20							0.309	0.049	-0.041			
21				0.577	0.043	-0.023	0.584	0.045	-0.040			
22				0.099	0.062	0.011	0.104	0.063	0.008			
23				0.133	0.055	-0.001	0.140	0.057	-0.020			
24					0.055		0.293	0.049	-0.020			
25				0.543	0.043	-0.008	0.552	0.046	-0.025			
26	0.194	0.061	-0.018				0.209	0.062	-0.067			
27	0.389	0.047	-0.024				0.390	0.051	-0.056			
28							0.170	0.064	-0.048			
29							0.272	0.052	-0.055			
30							0.172	0.057	-0.068			
31							0.258	0.049	-0.051			

Comparisons of the 2-, 3-, and 4-caliber nose at supersonic Mach numbers in Figure 11 show that the effect of bluntness on drag is more pronounced with increasing supersonic Mach numbers.

The variation in forebody axial force coefficient with nose bluntness ratio is shown in Figure 12. The pronounced increase in C_{AF} for bluntness ratios ≥ 0.5 is apparent for a given supersonic Mach number.

Figure 13 shows the variation in forebody axial force coefficient with nose fineness ratio. C_{AF} generally decreases with increasing supersonic Mach numbers and increasing midsection length increases C_{AF} as shown in Figure 14.

The variation in the normal force slope with Mach number is shown in Figure 15 for various noses. The effect of nose bluntness on $C_{N\alpha}$ is more pronounced with increasing supersonic Mach numbers.

The variation in the normal force slope with nose bluntness ratio is shown in Figure 16 for various noses. For a given supersonic Mach number, $C_{N\alpha}$ generally decreases with increasing nose bluntness.

The variation in the normal force slope with nose fineness ratio is shown in Figure 17 for various noses. For a given supersonic Mach number, $C_{N\alpha}$ generally decreases slightly with increases in nose fineness ratio.

An increase in midsection length increases $C_{N\alpha}$ as shown in Figure 18.

The variation in the pitching moment slope with Mach number is shown in Figure 19 for various noses. Aft movement of the center of pressure past the nose cylinder juncture is apparent. $C_{m\alpha}$ generally decreases with increasing nose bluntness ratios as shown in Figure 20.

The variation in pitching moment slope with nose fineness ratio is shown in Figure 21. $C_{m\alpha}$ increases with increasing nose fineness ratio.

An increase in midsection length decreases $C_{m\alpha}$ as shown in Figure 22.

The variation in normal force coefficient with angle of attack for a 3-caliber pointed tangent ogive cylinder and hemisphere tangent ogive cylinder ($R_N/R_B = 0.75$) is shown in Figure 23(a). The effect of nose bluntness over angle of attack range of -6 to 14 degrees is small for a Mach number of 1.5, but a reduction in normal force coefficient is evident for $M_\infty = 4.0$. A comparison of 2- and 4-caliber noses at a given angle of attack shows a lower C_N value for the higher fineness ratio nose as shown in Figure 23(b).

The variation in pitching moment with angle of attack for a 4-caliber pointed tangent ogive cylinder and hemisphere tangent ogive cylinder

($R_N/R_B = 0.75$) is shown in Figure 24(a). The abrupt change in the pitching moment curve at $\alpha \sim 4^\circ$ is believed to be associated with flow separation on the cylinder. Schlieren photographs generally indicated flow separation for $\alpha > 5^\circ$. The effect of increasing nose bluntness results in more negative pitching moment coefficient as angle of attack is increased. This latter effect is more pronounced with increasing supersonic Mach numbers. Given an increase in nose fineness ratio, C_m is increased for a given α as shown in Figure 24(b).

The variation in center of pressure with angle of attack for a 3-caliber pointed tangent ogive cylinder and hemisphere-ogive cylinder ($R_N/R_B = 0.75$) is shown in Figure 25(a). The center of pressure moves further downstream at a given angle of attack for the bluff configuration. This latter effect is more pronounced with increasing supersonic Mach numbers. With increasing nose fineness ratio, the center of pressure moves further upstream as shown in Figure 25(b).

The variation of forebody axial force coefficient with Mach number is shown in Figure 26 for a series of 2.25-caliber noses. Data includes two hemisphere-tangent ogives and two power series noses. C_{AF} for the power series nose (N30) is less than the C_{AF} for the pointed tangent ogive nose (N26).

4. Supersonic Laminar Skin Friction Calculations and Nose Wave Drag

Test Reynolds numbers were selected to retain a laminar boundary layer over full body length at supersonic Mach numbers. Theoretical skin friction coefficients were calculated by VKF personnel and are given in Table 4 for various body lengths, nose bluntness, and nose lengths. Calculated model wetted areas are used in the calculations in Table 5. The method used for the skin friction calculations was based on reference by Patankar and Spalding as modified by Mayne and Dyer (References 9 and 10). A comparison of C_{AF} determined from experimental and typical handbook methods such as the USAF Stability and Control Datcom is shown in Figure 27 (Reference 11). The nose pressure drag coefficient was calculated by subtracting the calculated laminar skin friction drag coefficient from the measured forebody axial force coefficient. It should be noted that a fully laminar boundary layer was assumed over the full model length for these calculations and transition was not indicated from the Schlieren photographs or drag measurements. The agreement between the data and the Datcom method improves with increasing Mach number and nose fineness ratio.

TABLE 4. LAMINAR SKIN FRICTION CALCULATIONS (C_{AF})

Nose Configuration		$M_\infty = 1.5$						$M_\infty = 2.0$						$M_\infty = 3.0$						$M_\infty = 4.0$					
		M5*	M7*	M9*	M11*	M5*	M7*	M9*	M11*	M5*	M7*	M9*	M11*	M5*	M7*	M9*	M11*	M5*	M7*	M9*	M11*	M5*	M7*	M9*	M11*
		A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17	A17
		Body Fineness Ratio (BFR)																							
Nose	Nose (cal)	6	8	10	12	6	8	10	12	6	8	10	12	6	8	10	12	6	8	10	12	6	8	10	12
N10	0.5	0.0335	0.0370	0.0405	0.0441	0.0325	0.0360	0.0395	0.0431	0.0312	0.0353	0.0389	0.0422	0.0321	0.0356	0.0391	0.0427	0.0321	0.0356	0.0391	0.0427	0.0321	0.0356	0.0391	0.0427
N13	1.0	0.0355	0.0396	0.0437	0.0477	0.0353	0.0394	0.0435	0.0475	0.0354	0.0395	0.0436	0.0476	0.0375	0.0416	0.0457	0.0497	0.0375	0.0416	0.0457	0.0497	0.0375	0.0416	0.0457	0.0497
N14	2.0	0.0365	0.0406	0.0447	0.0487	0.0363	0.0404	0.0445	0.0485	0.0364	0.0405	0.0446	0.0486	0.0385	0.0426	0.0467	0.0507	0.0385	0.0426	0.0467	0.0507	0.0385	0.0426	0.0467	0.0507
N15	2.0	0.0353	0.0388	0.0423	0.0459	0.0347	0.0382	0.0417	0.0453	0.0344	0.0379	0.0414	0.0450	0.0362	0.0397	0.0432	0.0468	0.0362	0.0397	0.0432	0.0468	0.0362	0.0397	0.0432	0.0468
N16	2.0	0.0341	0.0376	0.0411	0.0447	0.0331	0.0366	0.0401	0.0437	0.0324	0.0359	0.0394	0.0430	0.0339	0.0374	0.0409	0.0445	0.0339	0.0374	0.0409	0.0445	0.0339	0.0374	0.0409	0.0445
N17	2.0	0.0329	0.0364	0.0399	0.0435	0.0315	0.0350	0.0385	0.0421	0.0304	0.0339	0.0374	0.0410	0.0316	0.0351	0.0386	0.0422	0.0316	0.0351	0.0386	0.0422	0.0316	0.0351	0.0386	0.0422
N18	3.0	0.0375	0.0420	0.0461	0.0499	0.0373	0.0414	0.0455	0.0495	0.0374	0.0418	0.0458	0.0495	0.0395	0.0438	0.0480	0.0517	0.0395	0.0438	0.0480	0.0517	0.0395	0.0438	0.0480	0.0517
N19	3.0	0.0363	0.0398	0.0433	0.0469	0.0357	0.0392	0.0427	0.0463	0.0354	0.0389	0.0424	0.0460	0.0372	0.0407	0.0442	0.0478	0.0372	0.0407	0.0442	0.0478	0.0372	0.0407	0.0442	0.0478
N20	3.0	0.0351	0.0386	0.0421	0.0457	0.0342	0.0377	0.0412	0.0448	0.0334	0.0369	0.0404	0.0440	0.0350	0.0385	0.0420	0.0452	0.0350	0.0385	0.0420	0.0452	0.0350	0.0385	0.0420	0.0452
N21	3.0	0.0339	0.0374	0.0409	0.0445	0.0326	0.0361	0.0396	0.0432	0.0314	0.0349	0.0384	0.0420	0.0324	0.0359	0.0394	0.0430	0.0324	0.0359	0.0394	0.0430	0.0324	0.0359	0.0394	0.0430
N22	4.0	0.0387	0.0431	0.0471	0.0508	0.0384	0.0425	0.0466	0.0506	0.0386	0.0427	0.0468	0.0508	0.0403	0.0446	0.0489	0.0524	0.0403	0.0446	0.0489	0.0524	0.0403	0.0446	0.0489	0.0524
N23	4.0	0.0375	0.0410	0.0445	0.0481	0.0368	0.0403	0.0438	0.0474	0.0366	0.0401	0.0436	0.0472	0.0380	0.0415	0.0450	0.0486	0.0380	0.0415	0.0450	0.0486	0.0380	0.0415	0.0450	0.0486
N24	4.0	0.0363	0.0398	0.0433	0.0469	0.0352	0.0387	0.0422	0.0458	0.0346	0.0381	0.0416	0.0452	0.0357	0.0392	0.0427	0.0463	0.0357	0.0392	0.0427	0.0463	0.0357	0.0392	0.0427	0.0463
N25	4.0	0.0351	0.0386	0.0421	0.0457	0.0336	0.0371	0.0406	0.0442	0.0326	0.0361	0.0396	0.0432	0.0334	0.0369	0.0404	0.0440	0.0334	0.0369	0.0404	0.0440	0.0334	0.0369	0.0404	0.0440
N26	2.25	0.0340	0.0375	0.0410	0.0446	0.0329	0.0364	0.0399	0.0435	0.0321	0.0356	0.0391	0.0427	0.0335	0.0370	0.0405	0.0441	0.0335	0.0370	0.0405	0.0441	0.0335	0.0370	0.0405	0.0441
N27	2.25	0.0368	0.0409	0.0450	0.0490	0.0366	0.0407	0.0448	0.0488	0.0367	0.0408	0.0449	0.0489	0.0388	0.0429	0.0470	0.0510	0.0388	0.0429	0.0470	0.0510	0.0388	0.0429	0.0470	0.0510
N28	2.5	0.0370	0.0411	0.0452	0.0492	0.0368	0.0409	0.0450	0.0490	0.0369	0.0410	0.0451	0.0491	0.0390	0.0431	0.0472	0.0512	0.0390	0.0431	0.0472	0.0512	0.0390	0.0431	0.0472	0.0512

NOTE: All C_{AF} values for $\alpha = 0^\circ$

TABLE 5. WETTED AREA, S_w

Nose	Nose Caliber	R_N/R_B	Body Fineness Ratio (BPR)			
			6	8	10	12
N10	0.5	1.0	31.667	38.453	47.501	56.549
N13	1.0	0	30.587	39.635	48.683	57.731
N14	2.0	0	33.398	42.446	51.494	60.542
N15	2.0	0.25	33.344	42.392	51.440	60.488
N16	2.0	0.50	33.129	42.177	51.225	60.273
N17	2.0	0.75	32.539	41.587	50.635	59.683
N18	3.0	0	36.341	45.389	54.437	63.485
N19	3.0	0.25	36.222	45.270	54.318	63.366
N20	3.0	0.50	35.770	44.818	*53.866	62.914
N21	3.0	0.75	34.619	43.667	52.716	61.763
N22	4.0	0	39.319	48.367	57.415	66.463
N23	4.0	0.25	39.130	48.178	57.226	66.274
N24	4.0	0.50	38.415	47.463	56.511	65.559
N25	4.0	0.75	36.697	45.745	*54.793	63.841
N26	2.25	0	34.128	43.176	52.224	61.272
N27	2.25	0.575	33.637	42.685	51.733	60.781
N28	2.5	0	34.862	43.910	52.958	62.006
N29	2.25	0.375	33.959	43.007	52.055	61.103
N30	2.25	-----	34.055	43.103	52.151	61.199
N31	2.25	-----	34.832	43.880	52.938	61.986
Note: S_w = Total Wetted Area, IN^2						

SECTION V

RECOMMENDATIONS FOR FUTURE TASKS

1. Assess the methodologies described in References 12 and 13 as predictive techniques for the static aerodynamic characteristics of bluff body alone configurations. The data matrix in this report should be useful in assessing these methods.
2. Determine the Reynolds number effects on the drag and static stability characteristics for selected nose configurations on the 5- and 9-caliber midsection with Reynolds numbers ranging up to $20 \times 10^6/\text{ft}$ for the existing model sizes and selected larger models similar to that in Reference 5.
3. Measure pressure distributions on selected nose configurations using the larger model scale noted above and the 5-caliber midsection at selected Reynolds numbers to determine C_{Ap} and utilize oil flow techniques to locate separation and heating rate measurements to locate transition.
4. Obtain additional data for nose bluntness ratio variations of $R_N/R_B = 0.00$ to 0.20 to define the degree of bluntness which will result in a minimum forebody pressure axial force (C_{Ap}) for the 2.3- and 4-caliber noses. Also obtain force and moment data for 1-caliber tangent ogive family with bluntness ratios of 0.25, 0.50, and 0.75.

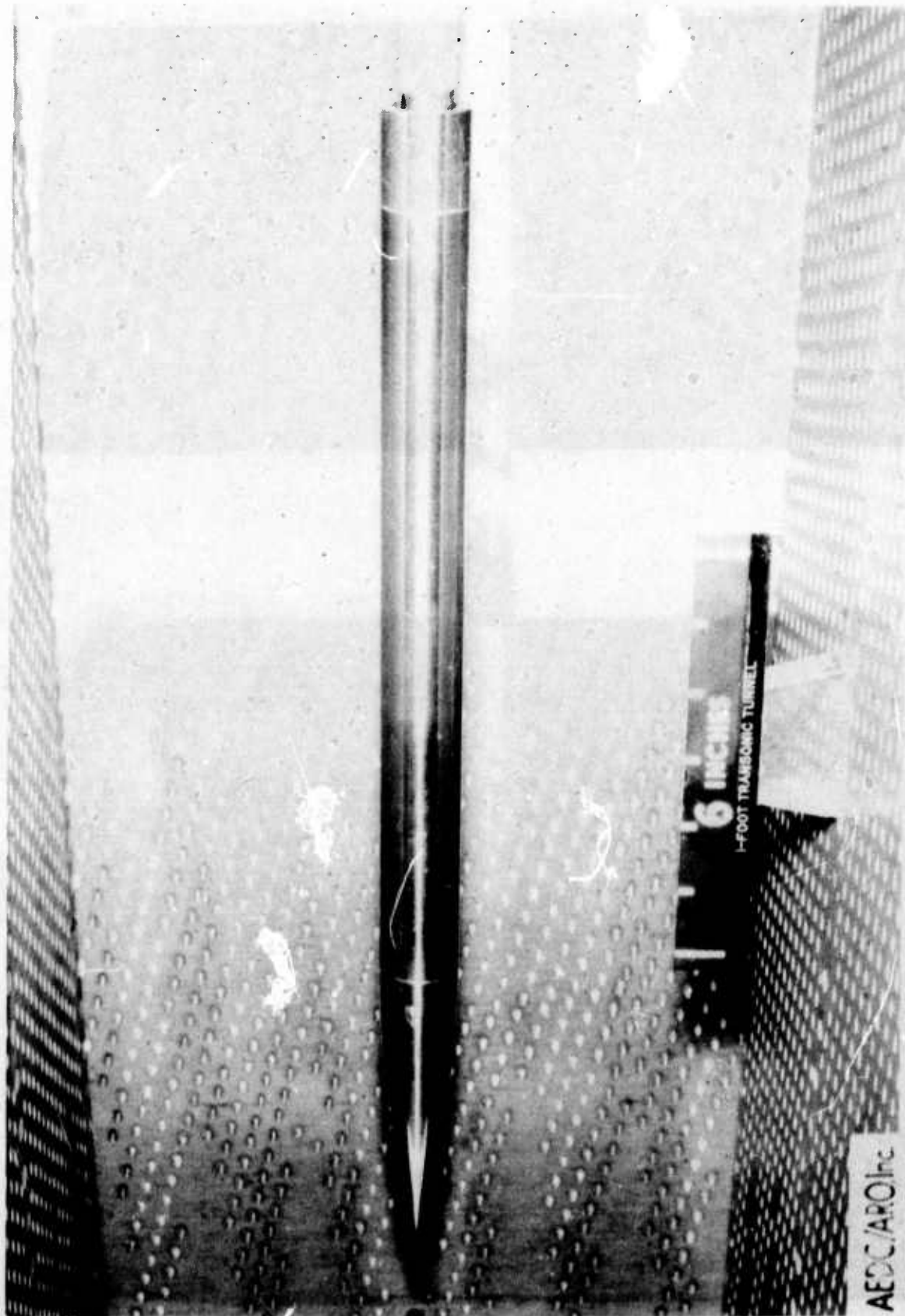


Figure 1. Typical (IT) Model Installation

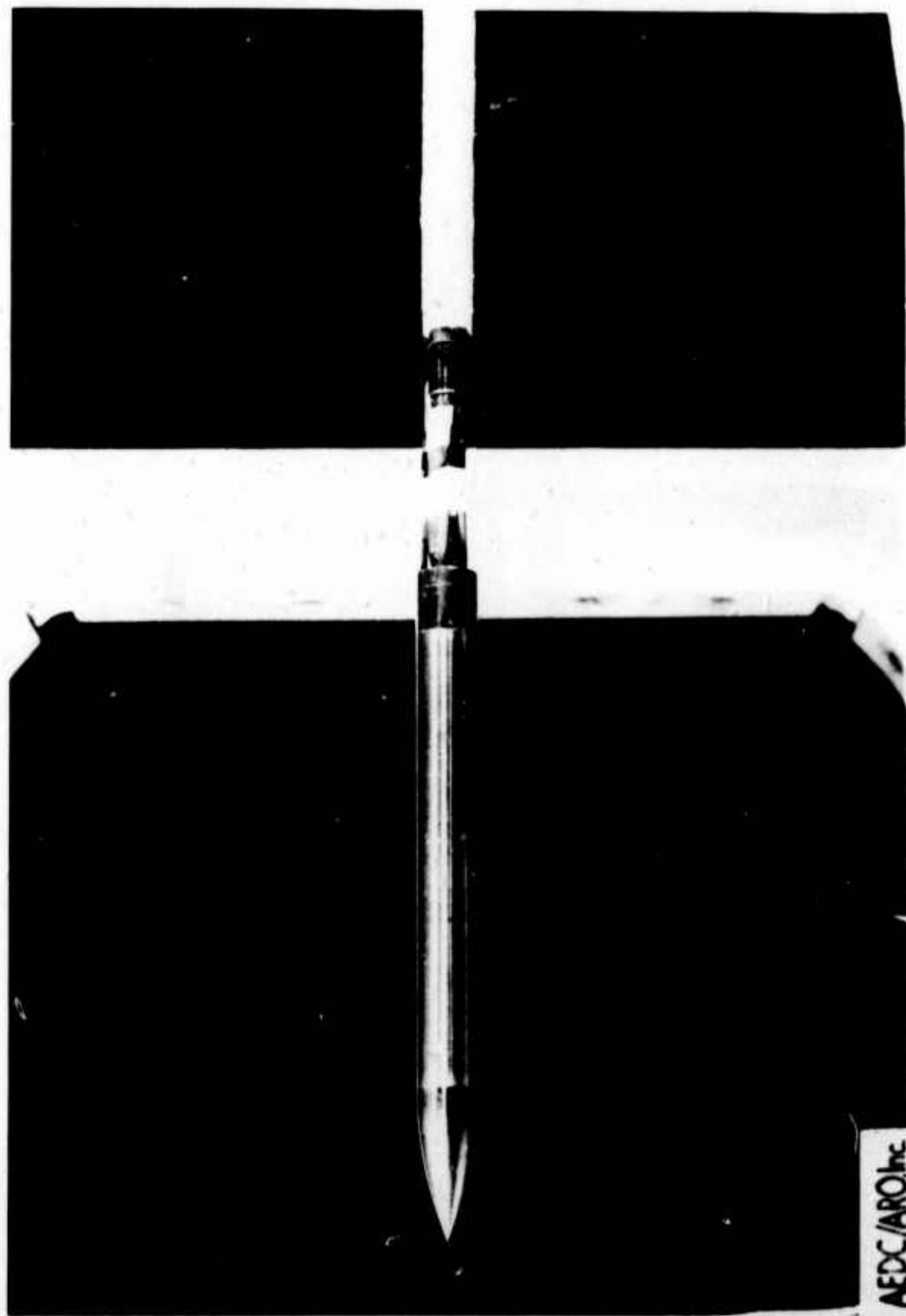


Figure 2. Typical (A) Model Installation

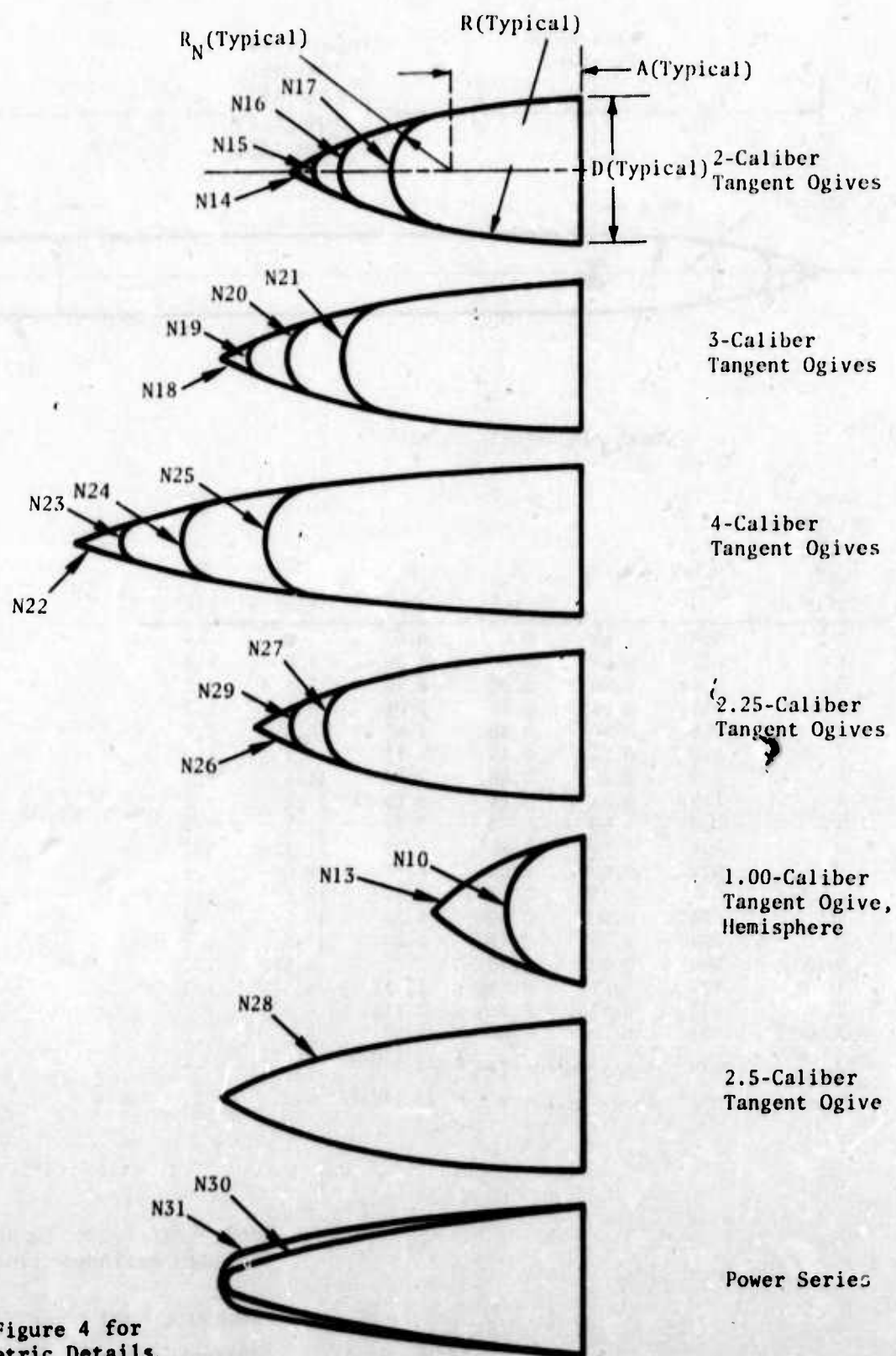
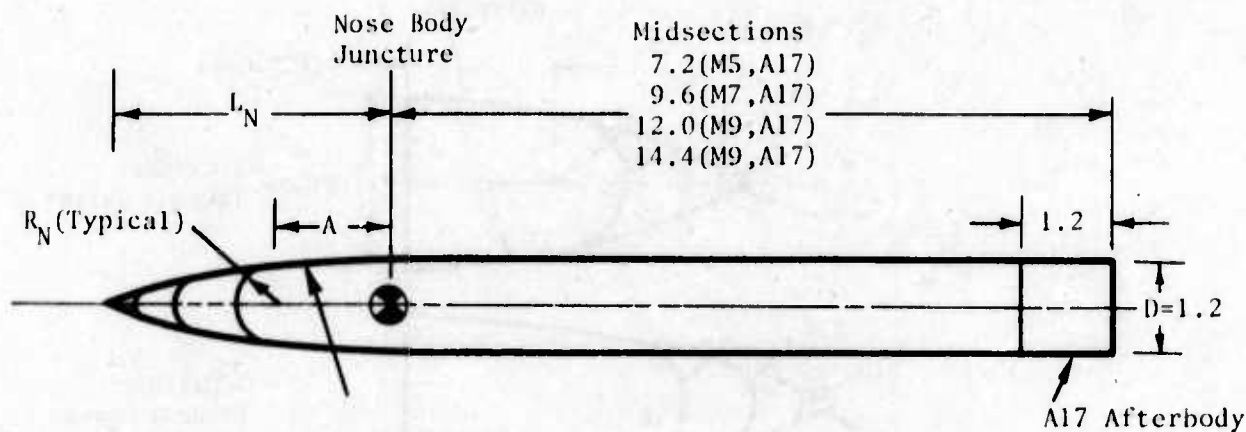


Figure 3. Nose Components and Nose Configurations



MODEL DIMENSIONAL DETAILS

Nose Fineness Ratio L_N/D (Caliber)	Nose Config	R_N/R_B	R_N (in)	A (in)	R (in)	D _o (in)
0.5	N10	1.00	0.6	0.6	--	--
1	N13	0.00	0.00	1.20	1.5	1.2
2	N14	0.00	0.00	2.40	5.1	1.2
2	N15	0.25	0.15	2.06	5.1	1.2
2	N16	0.50	0.30	1.67	5.1	1.2
2	N17	0.75	0.45	1.17	5.1	1.2
3	N18	0.00	0.00	3.60	11.1	1.2
3	N19	0.25	0.15	3.10	11.1	1.2
3	N20	0.50	0.30	2.53	11.1	1.2
3	N21	0.75	0.45	1.78	11.1	1.2
4	N22	0.00	0.00	4.80	19.5	1.2
4	N23	0.25	0.15	4.15	19.5	1.2
4	N24	0.50	0.30	3.38	19.5	1.2
4	N25	0.75	0.45	2.38	19.5	1.2
2.25	N26	0.00	0.00	2.70	6.375	1.2
2.25	N27	0.575	0.345	1.735	6.375	1.2
2.25	N29	0.375	0.225	2.115	6.375	1.2
2.50	N28	0.00	0.00	3.00	7.8	1.2
2.25	N30	Local Radius $Y = (x/2.7)^{0.5}$			--	--
2.25	N31	Local Radius $Y = (x/2.7)^{0.33}$			--	--

Note:

1. Moment reference location at the nose cylinder juncture
2. Reference Area = $\frac{\pi D^2}{4}$
3. Reference Length = D
4. All dimensions in inches

Figure 4. Midsections, Afterbody, and Assembly of Model Components

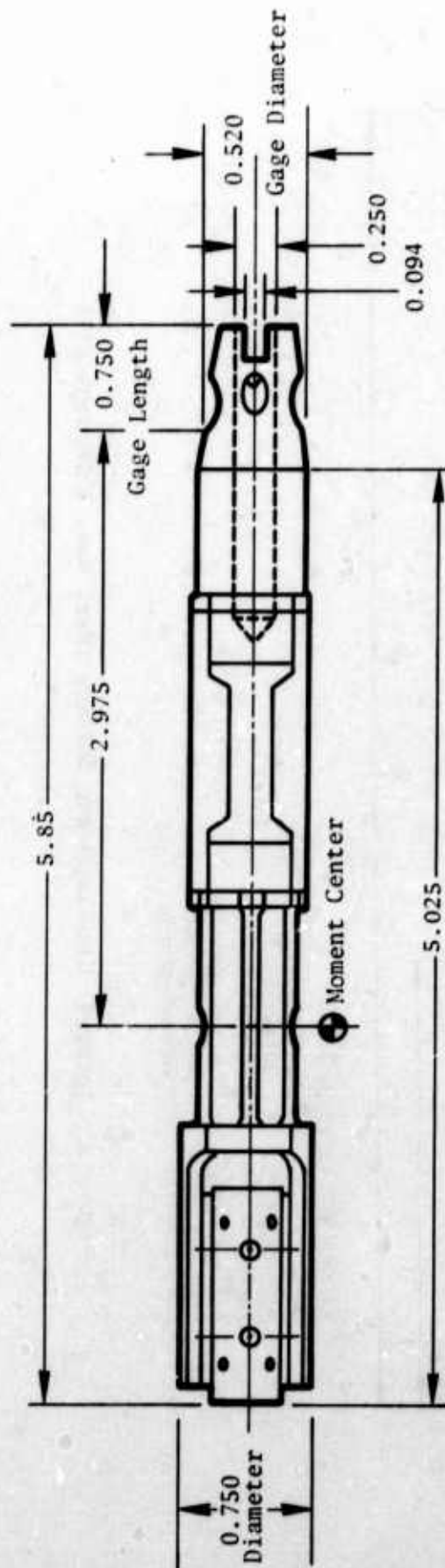


Figure 5. Internal Six-Component Balance [(IT) Test Facility]

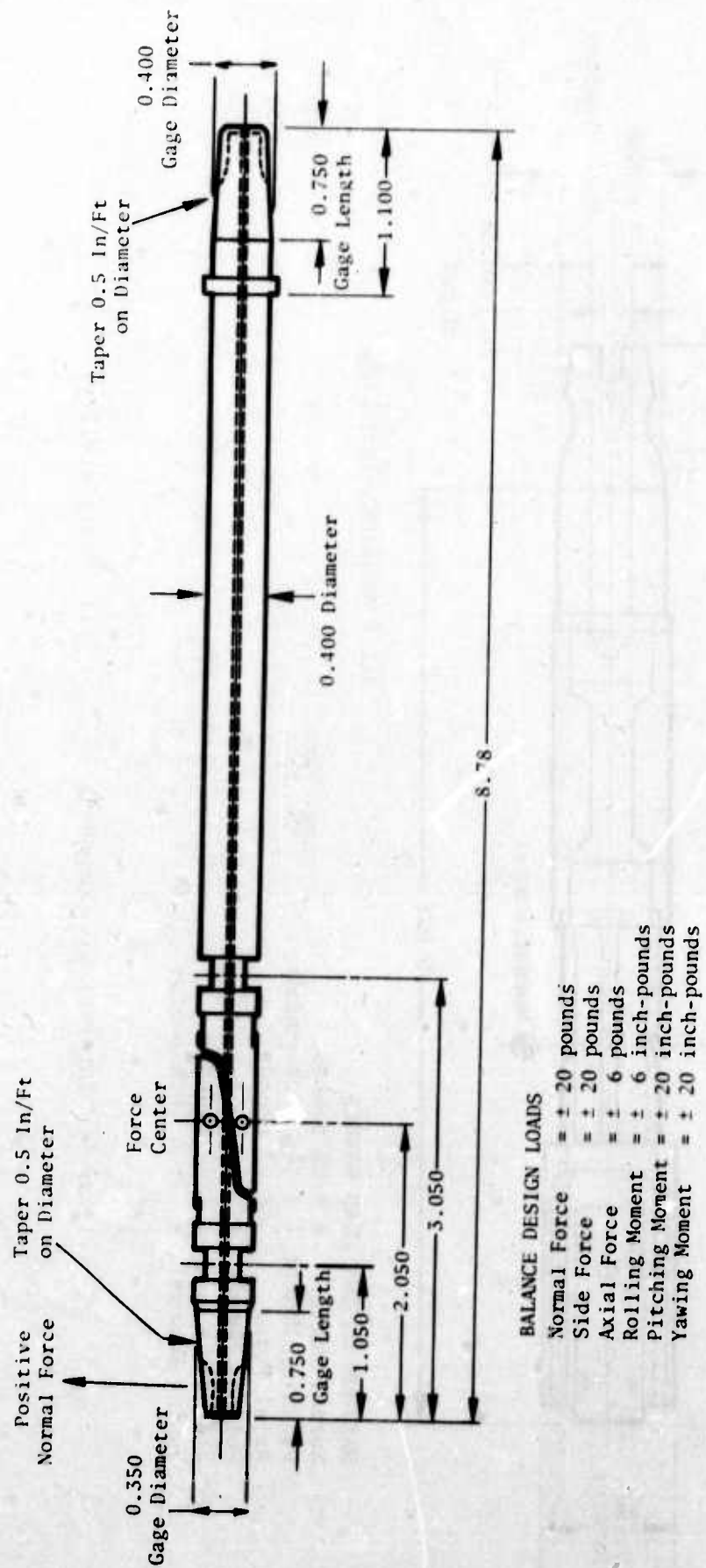
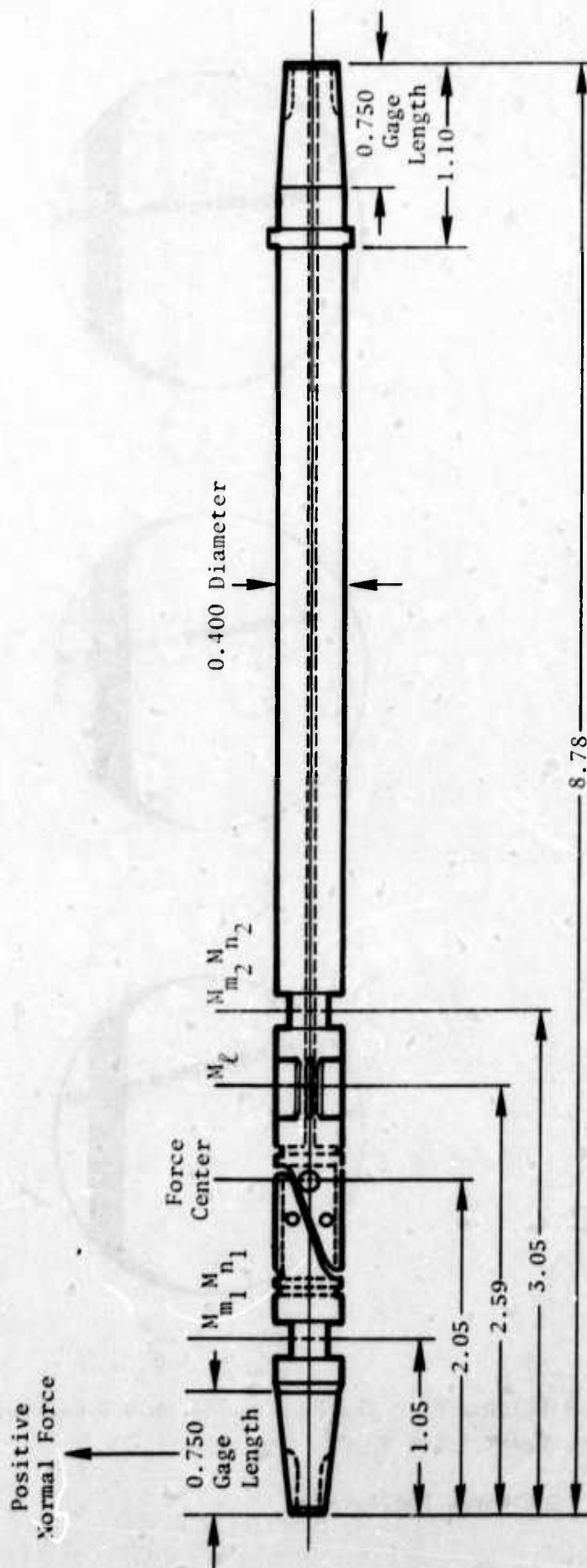


Figure 6. Internal Six-Component Balance (Part Nos. 1 Through 247)



BALANCE DESIGN LOADS

Normal Force	= ± 10 pounds
Side Force	= ± 10 pounds
Axial Force	= ± 6 pounds
Rolling Moment	= ± 2.25 inch-pounds
Pitching Moment	= ± 10 inch-pounds
Yawing Moment	= ± 10 inch-pounds

Figure 7. Internal Six-Component Balance (Part Nos. 248 Through 558)



$$\alpha = 3.5^\circ$$

$$M_\infty = 1.5$$



$$\alpha = 3.5^\circ$$

$$M_\infty = 4.0$$



$$\alpha = 7.30^\circ$$

$$M_\infty = 1.5$$



$$\alpha = 7.4^\circ$$

$$M_\infty = 4.0$$



$$\alpha = 12.7^\circ$$

$$M_\infty = 1.5$$

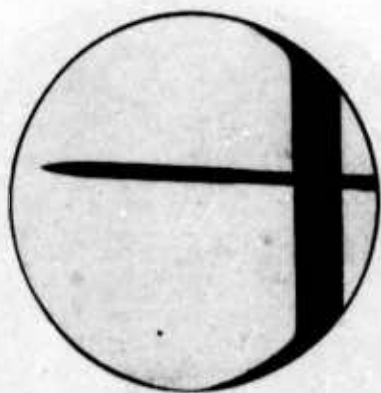


$$\alpha = 12.8^\circ$$

$$M_\infty = 4.0$$

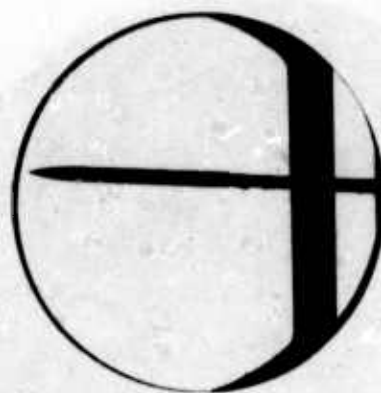
(a) Mach Number Variation on a 4-Caliber Nose ($R_N/R_B = 0.75$) on a 9-Caliber Midsection, $R_C/F_t = 1.8 \times 10^6$

Figure 8. Schlieren Photographs



$$\alpha = 3.5^\circ$$

$$M_\infty = 1.5$$



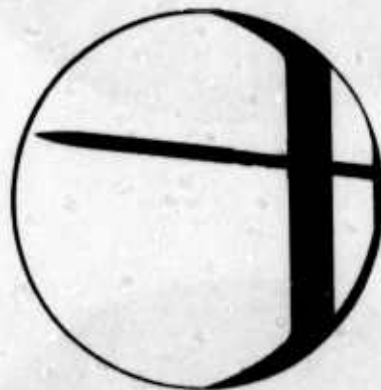
$$\alpha = 3.5^\circ$$

$$M_\infty = 4.0$$



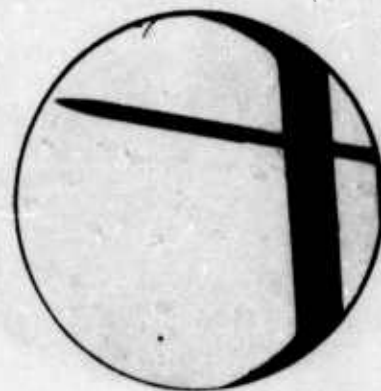
$$\alpha = 7.3^\circ$$

$$M_\infty = 1.5$$



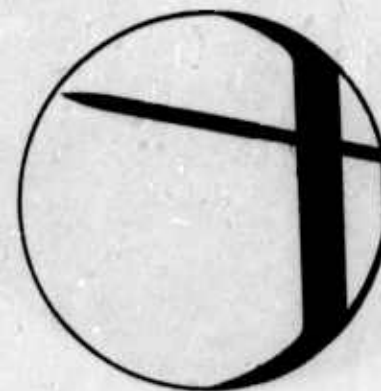
$$\alpha = 7.3^\circ$$

$$M_\infty = 4.0$$



$$\alpha = 12.7^\circ$$

$$M_\infty = 1.5$$



$$\alpha = 12.8^\circ$$

$$M_\infty = 4.0$$

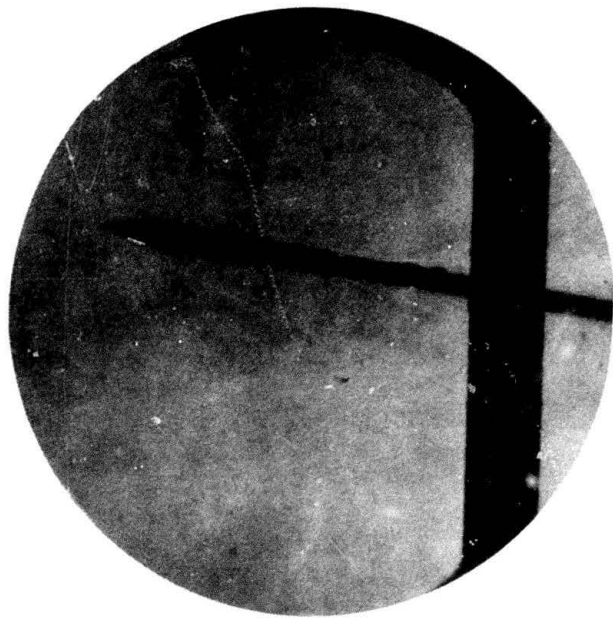
(b) Mach Number Variation on a 4-Caliber Nose ($R_N/R_B = 0.00$) on a 9-Caliber Midsection, $R_e/F_t = 1.8 \times 10^6$

Figure 8. Schlieren Photographs (Continued)



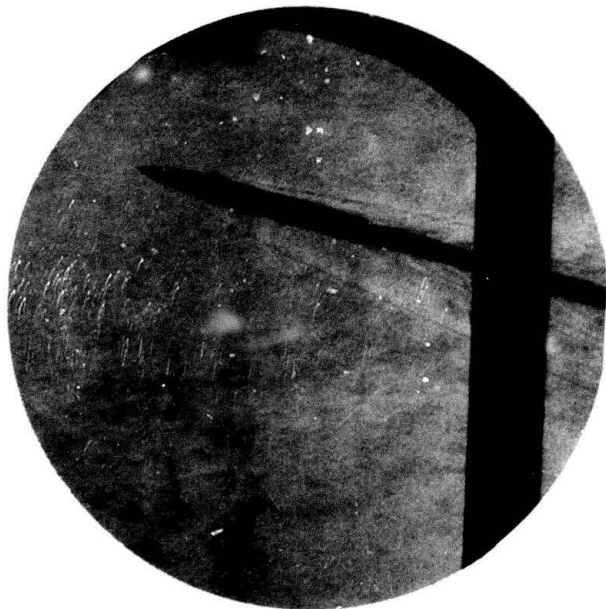
$$\alpha = 7.3^\circ$$

$$R_e/Ft = 1.14 \times 10^6$$



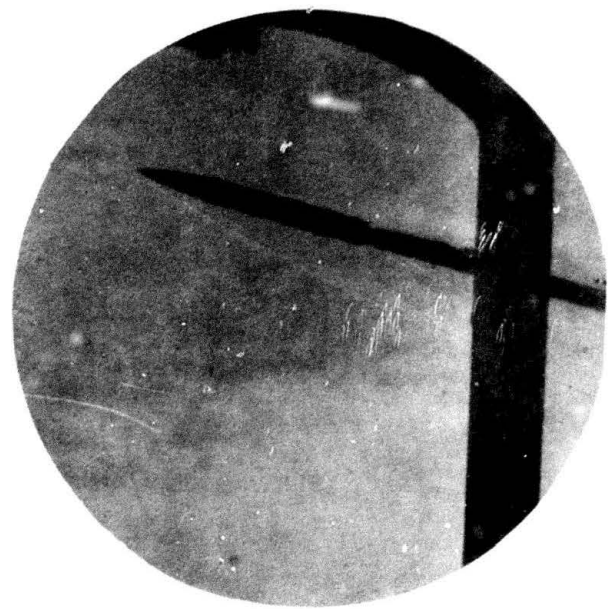
$$\alpha = 7.3^\circ$$

$$R_e/Ft = 5.67 \times 10^6$$



$$\alpha = 12.8^\circ$$

$$R_e/Ft = 1.14 \times 10^6$$

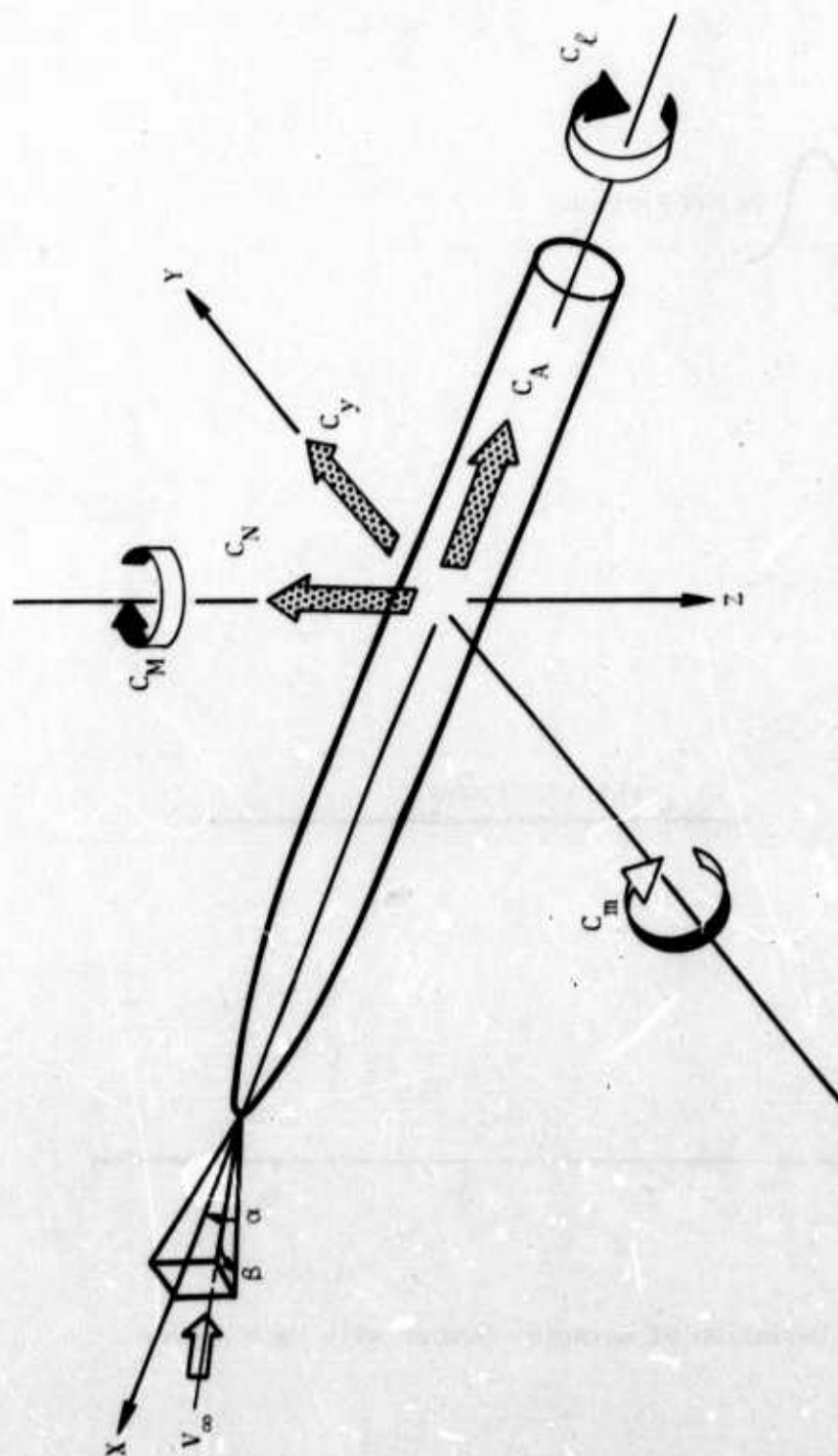


$$\alpha = 12.8^\circ$$

$$R_e/Ft = 5.67 \times 10^6$$

(c) Reynolds Number Variation on 4-Caliber Nose ($R_N/R_B = 0.00$)
on a 9-Caliber Midsection

Figure 8. Schlieren Photographs (Concluded)



- Note:
1. Only positive coefficients shown
 2. All forces and moments are referenced to the body axis system

Figure 9. Sign Convention

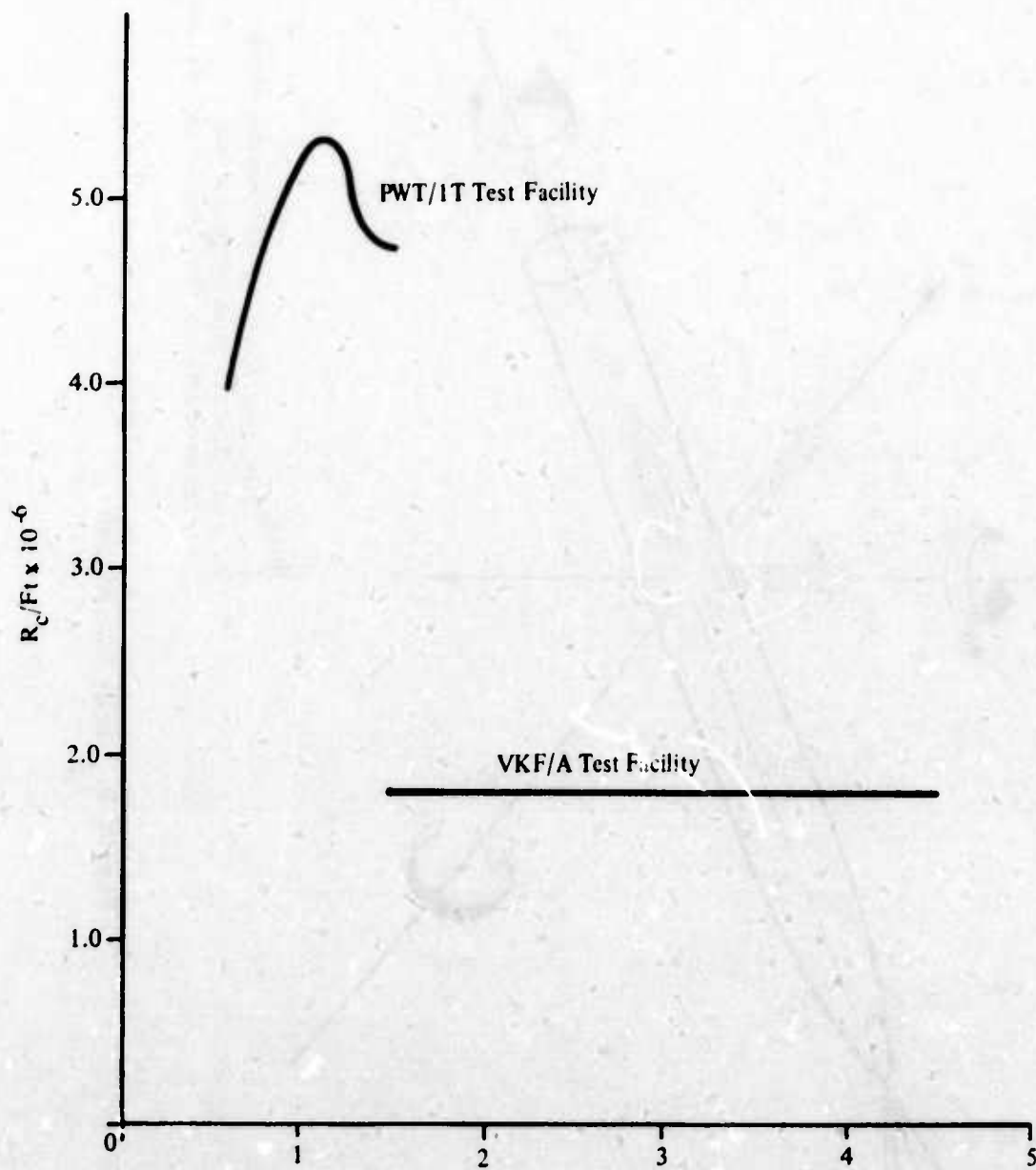
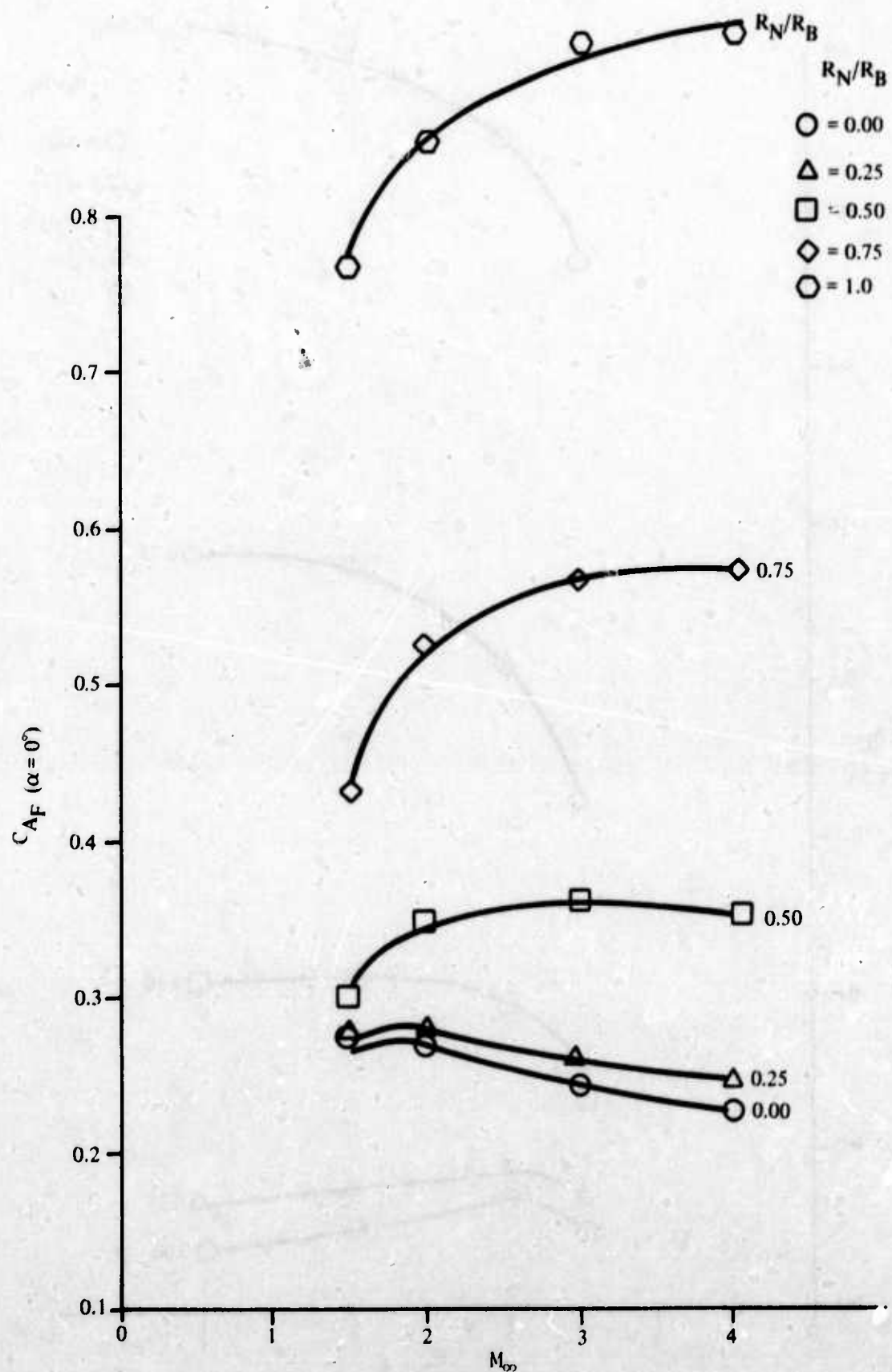


Figure 10. Variation of Reynolds Number with Mach Number



(a) 2-Caliber Noses

Figure 11. Variation of Forebody Axial Force Coefficient with Mach Number for Various Noses on 9-Caliber Midsection

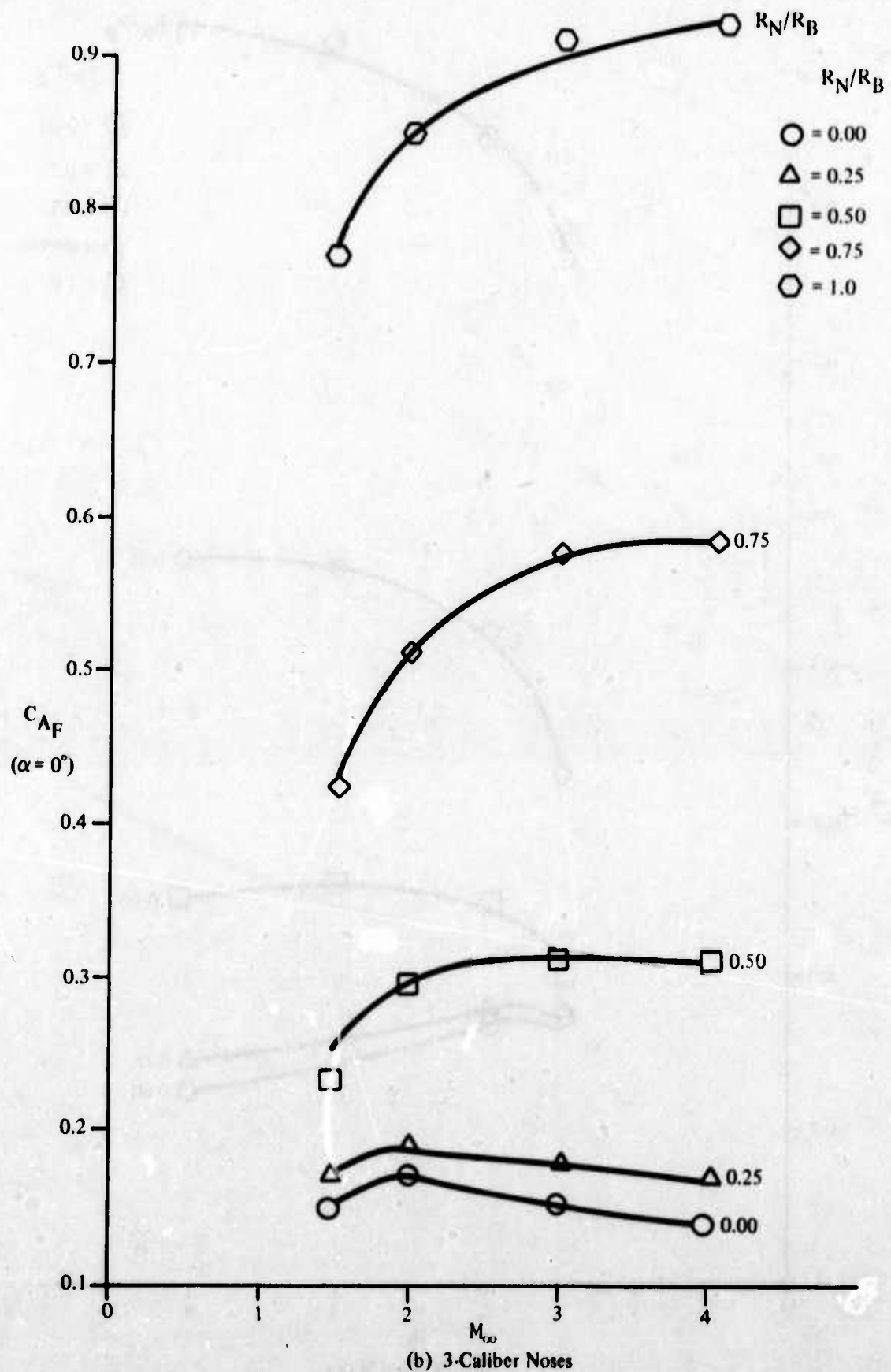
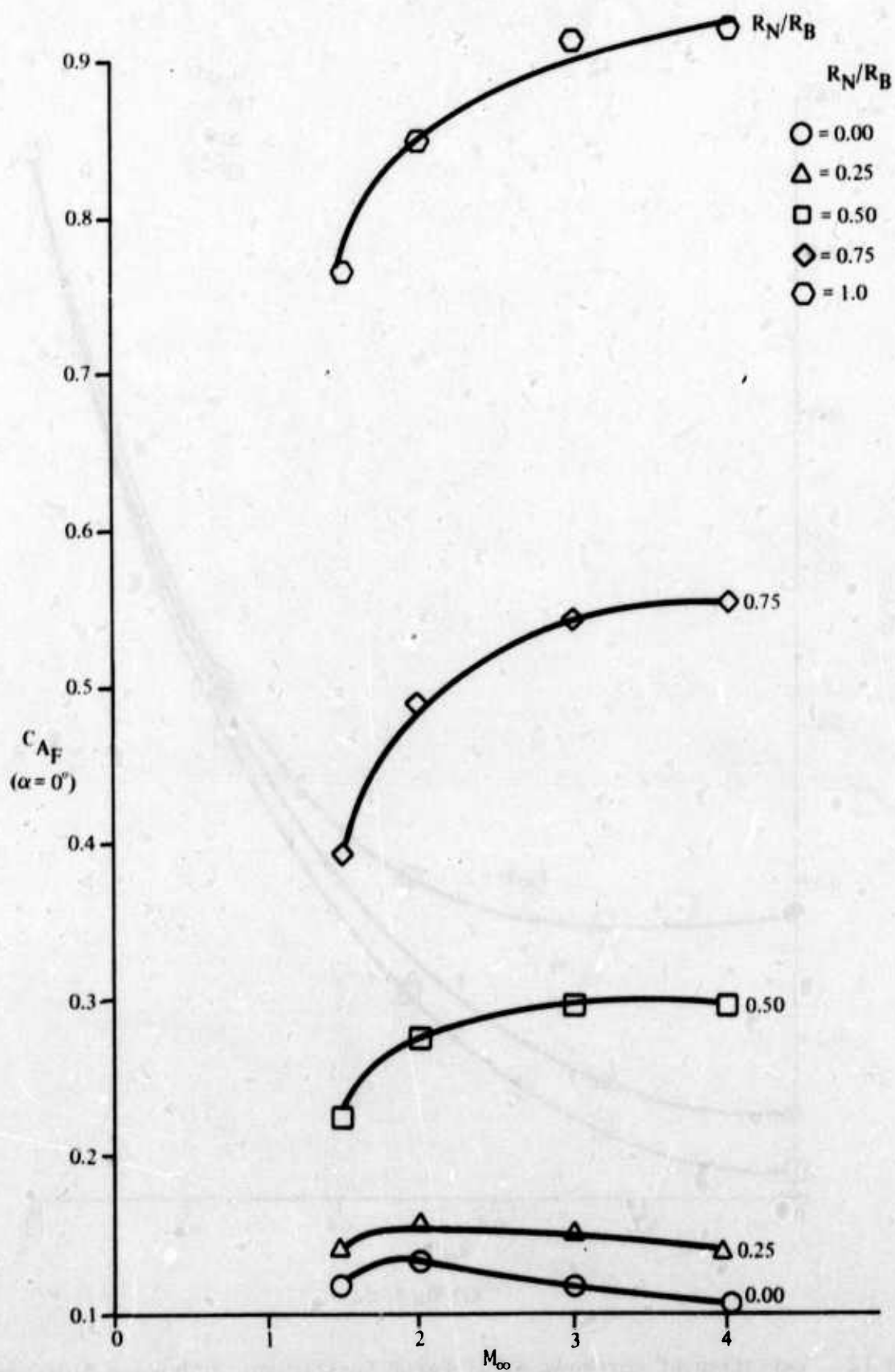


Figure 11. Variation of Forebody Axial Force Coefficient with Mach Number for Various Noses on 9-Caliber Midsection (Continued)



(c) 4-Caliber Noses

Figure 11. Variation of Forebody Axial Force Coefficient with Mach Number for Various Noses on 9-Caliber Midsection (Concluded)

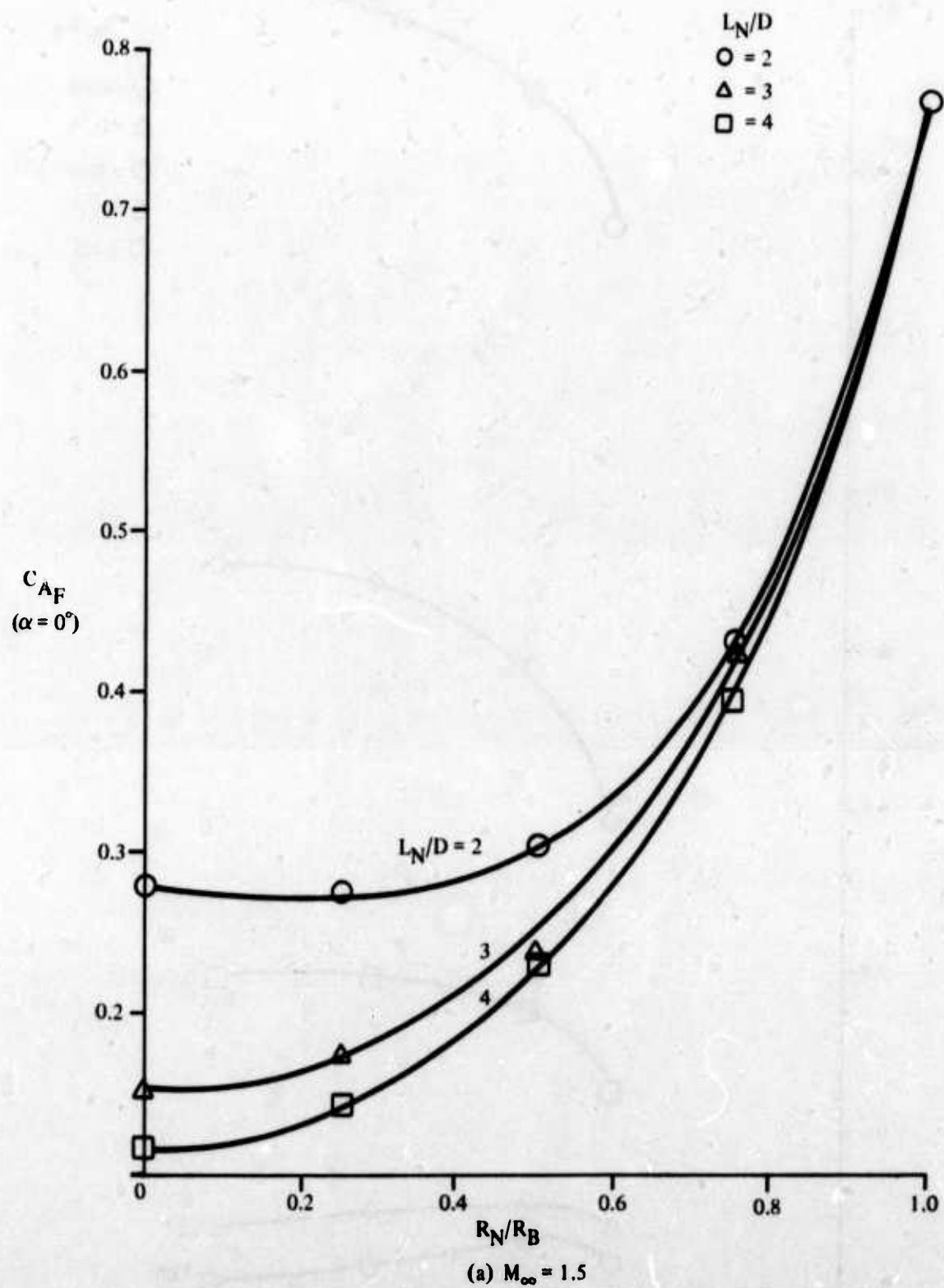


Figure 12. Variation of Forebody Axial Force Coefficient with Nose Bluffness Ratio for Various Noses on 9-Caliber Midsection

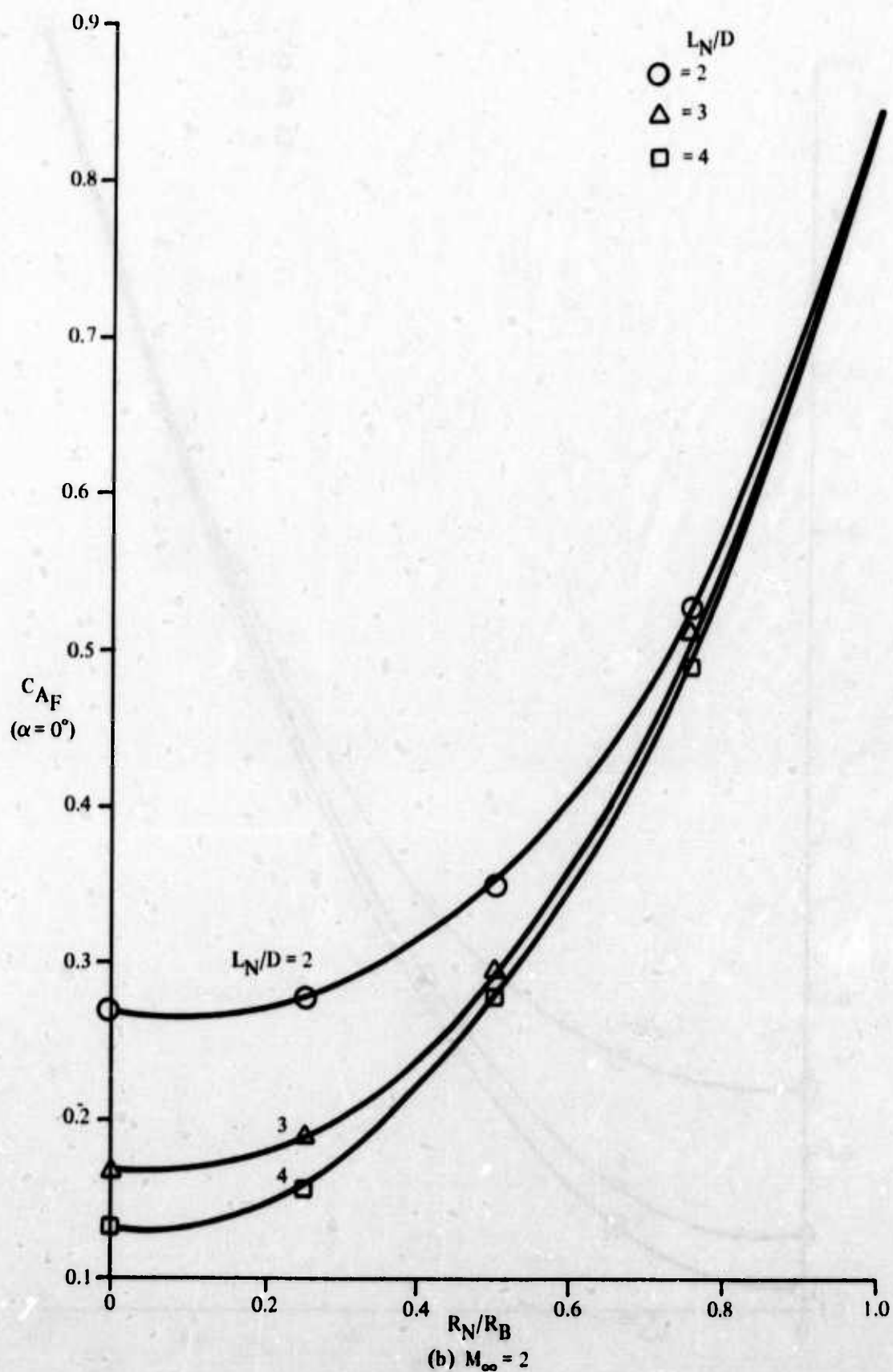


Figure 12. Variation of Forebody Axial Force Coefficient with Nose Bluffness Ratio for Various Noses on 9-Caliber Midsection (Continued)

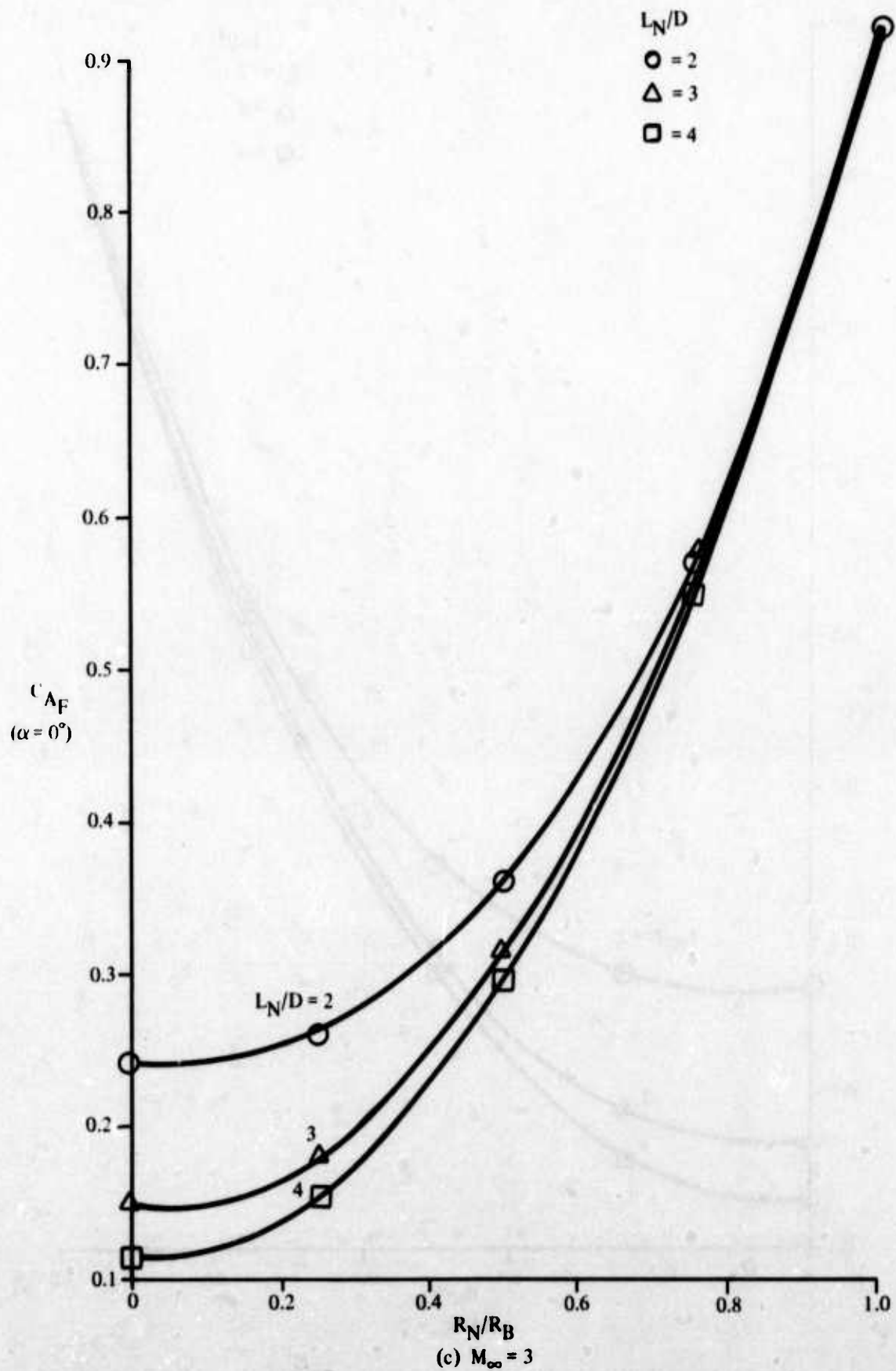


Figure 12. Variation of Forebody Axial Force Coefficient with Nose Bluffness Ratio for Various Noses on 9-Caliber Midsection (Continued)

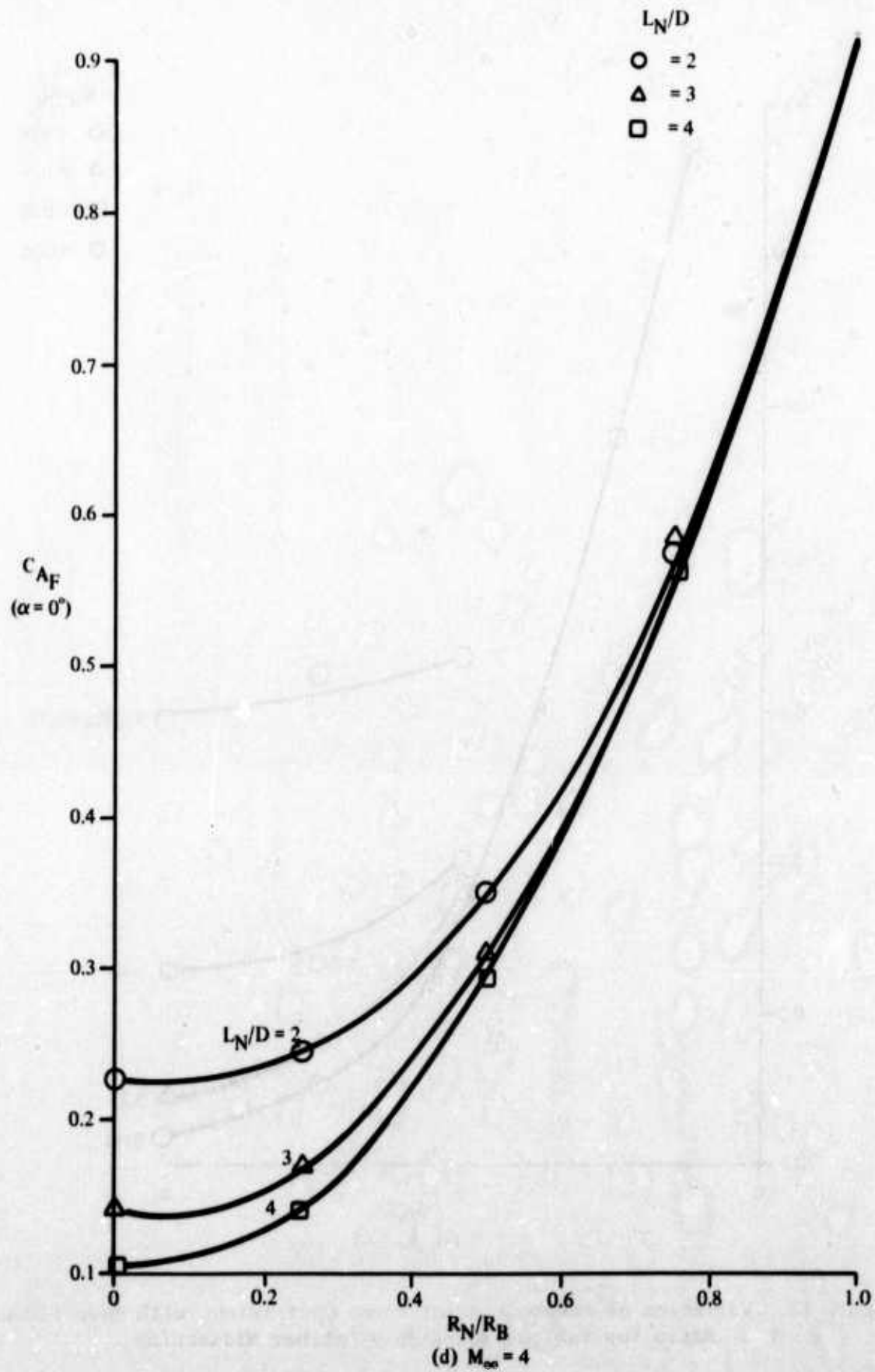


Figure 12. Variation of Forebody Axial Force Coefficient with Nose Bluffness Ratio for Various Noses on 9-Caliber Midsection (Concluded)

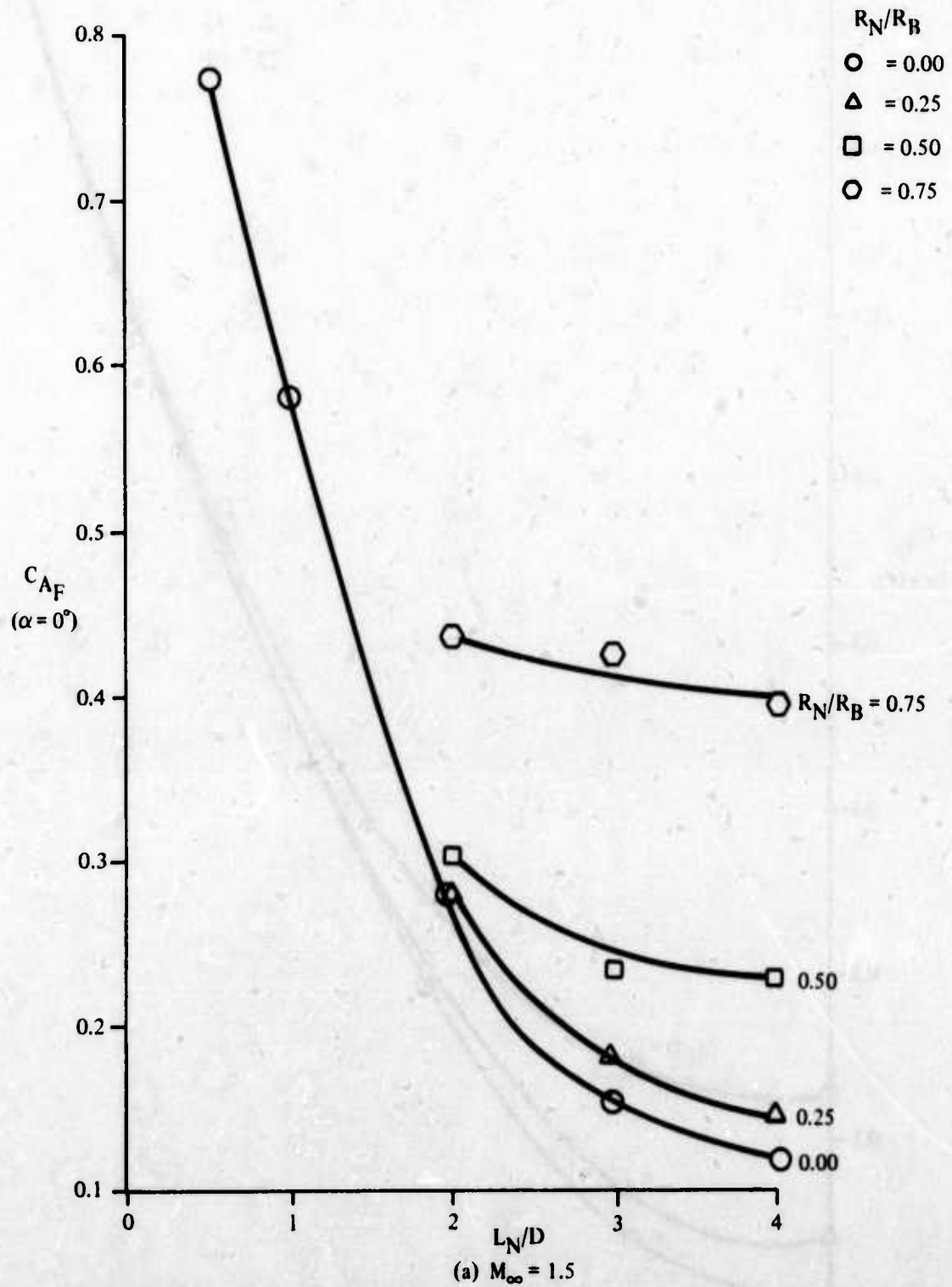


Figure 13. Variation of Forebody Axial Force Coefficient with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection

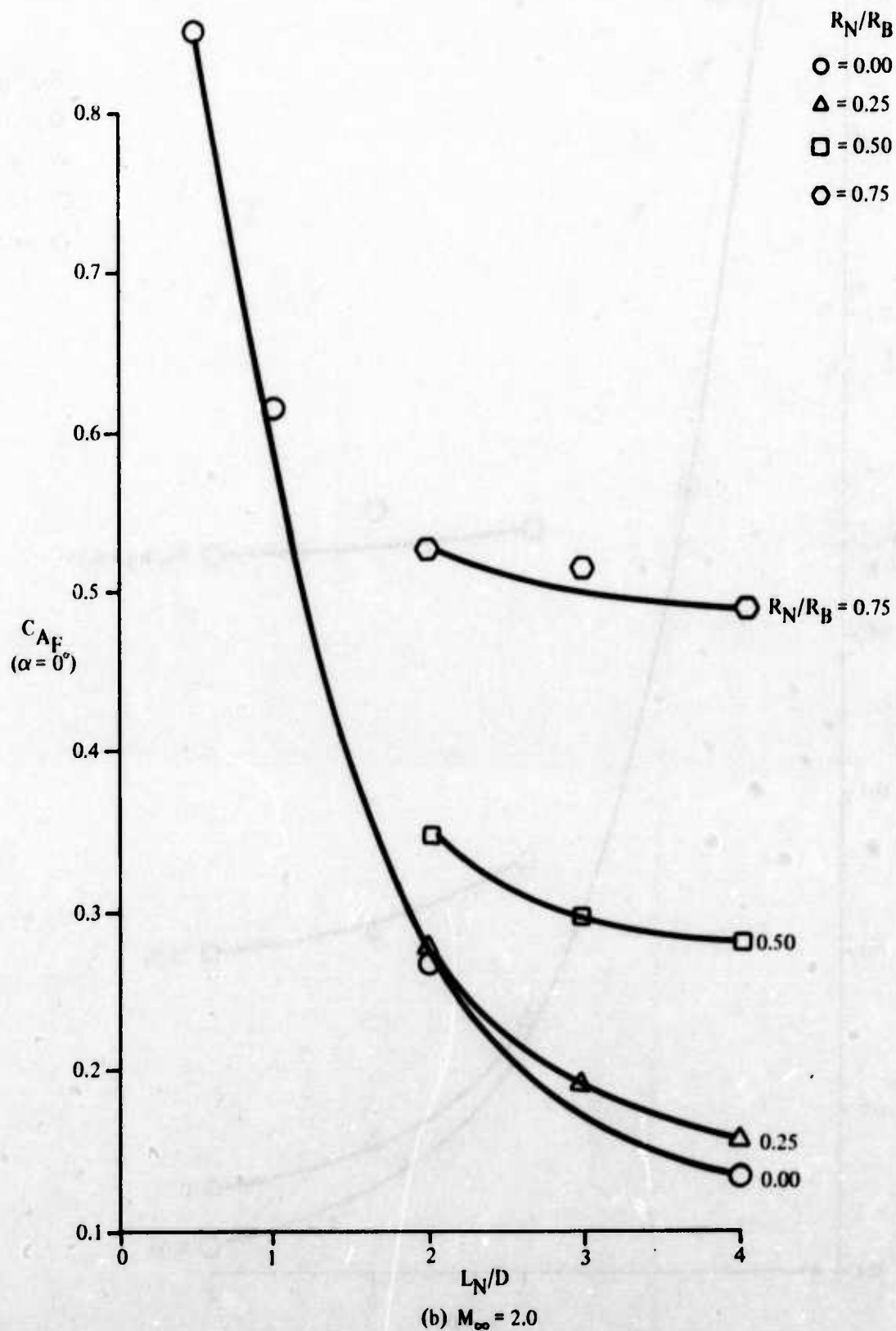


Figure 13. Variation of Forebody Axial Force Coefficient with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection (Continued)

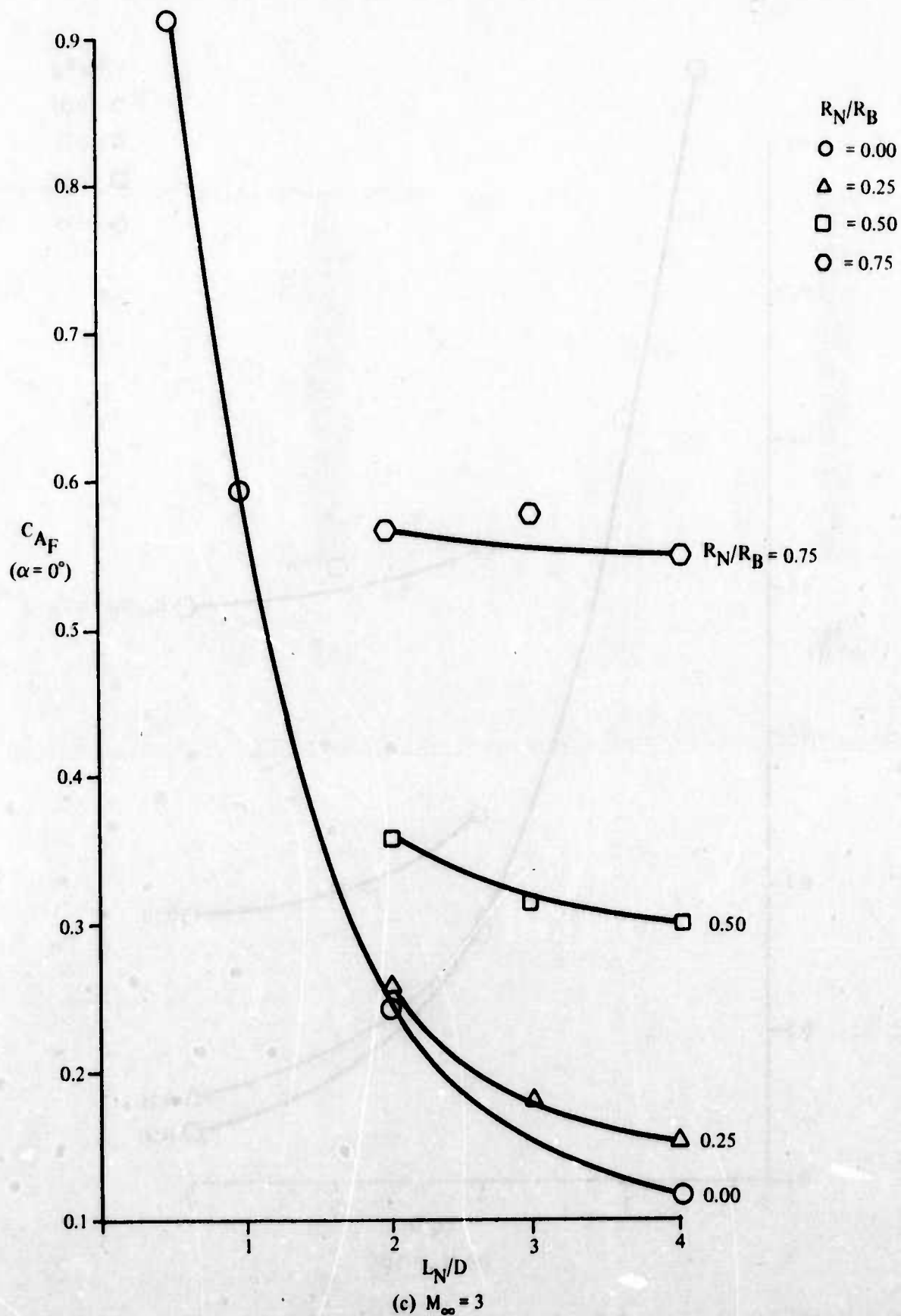


Figure 13. Variation of Forebody Axial Force Coefficient with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection (Continued)

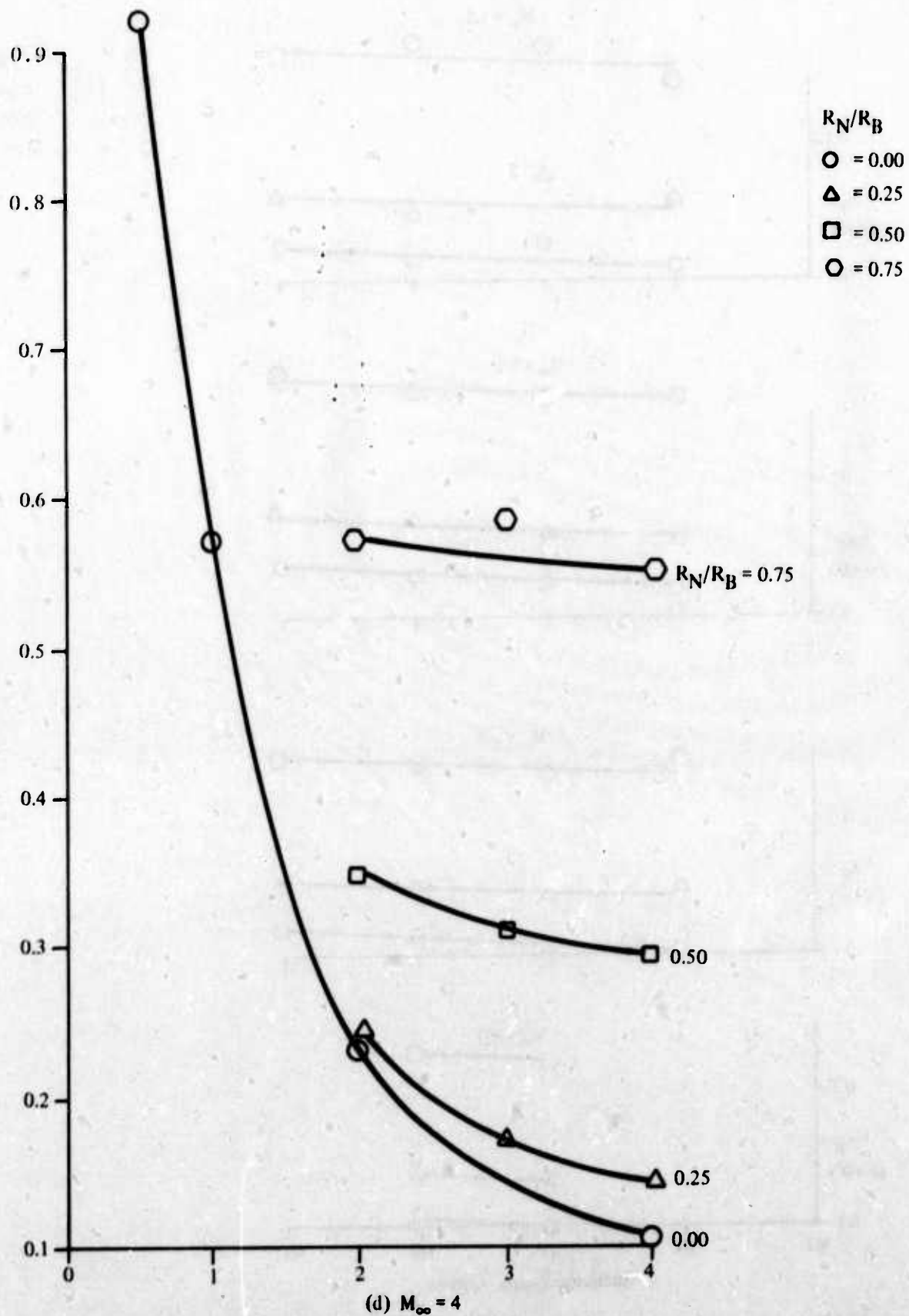


Figure 13. Variation of Forebody Axial Force Coefficient with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection (Concluded)

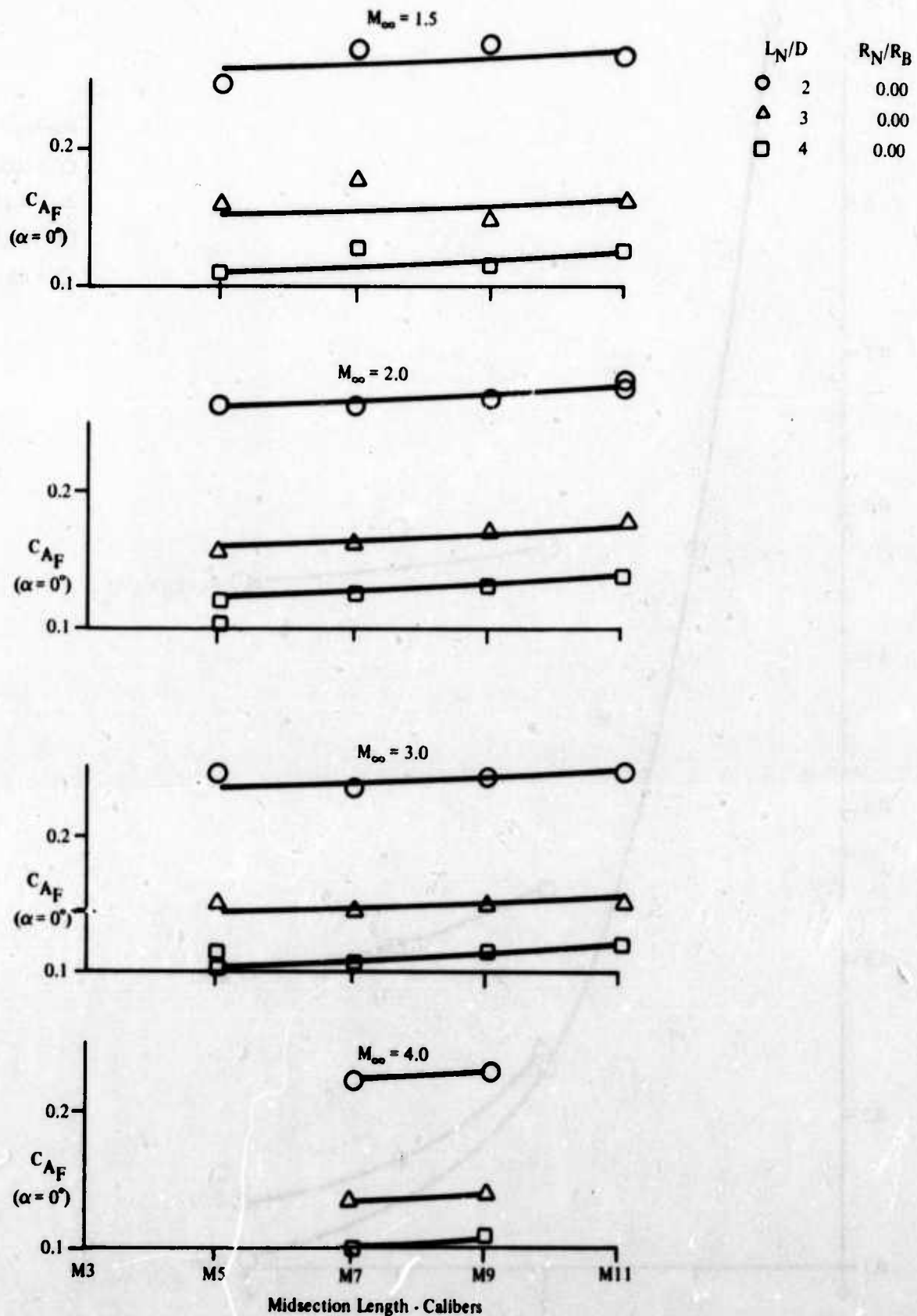


Figure 14. Variation of Forebody Axial Force Coefficient with Body Midsection Length for Various Noses on 9-Caliber Midsection

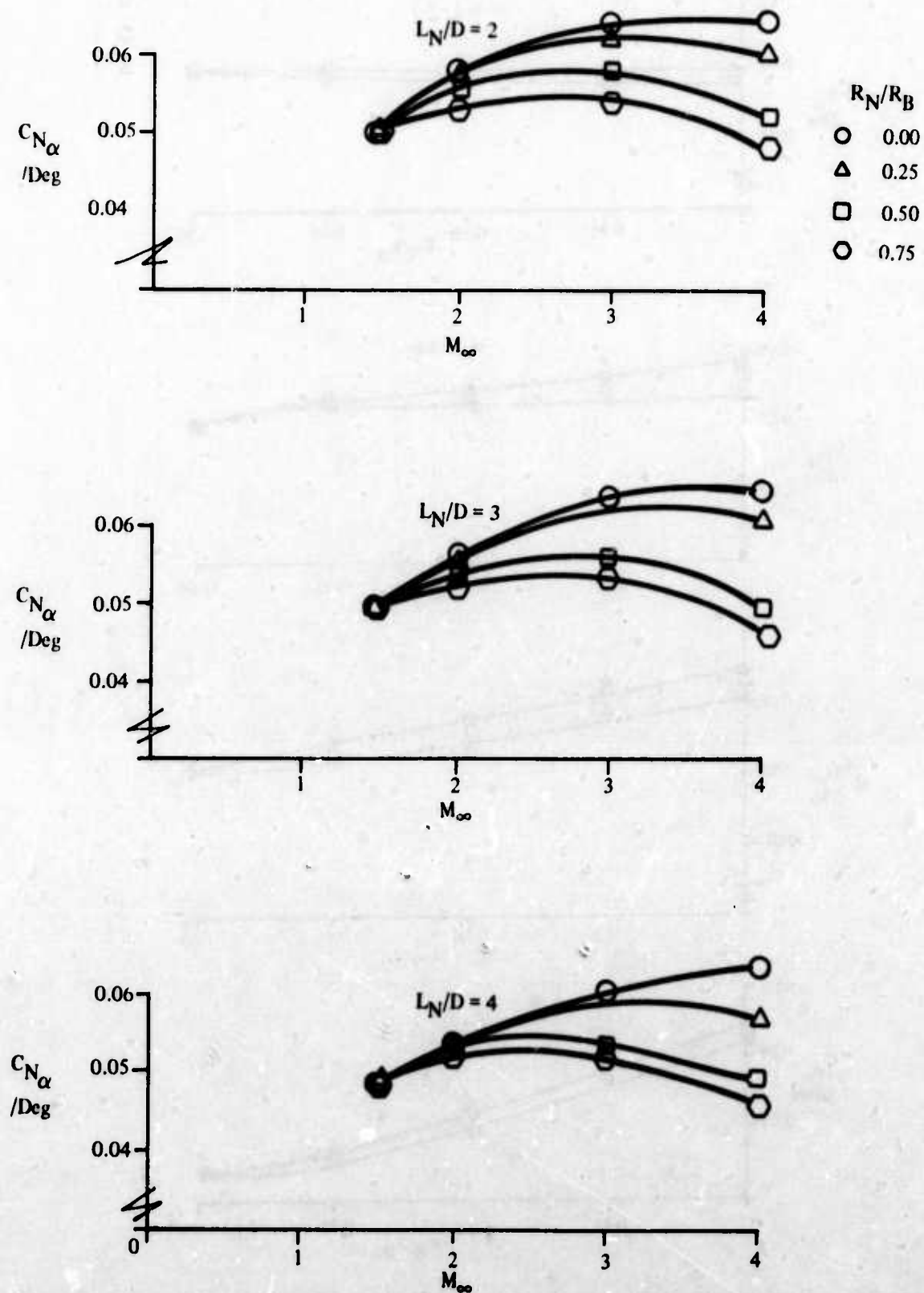


Figure 15. Variation of Normal Force Coefficient Slope with Mach Number for Various Noses on 9-Caliber Midsection

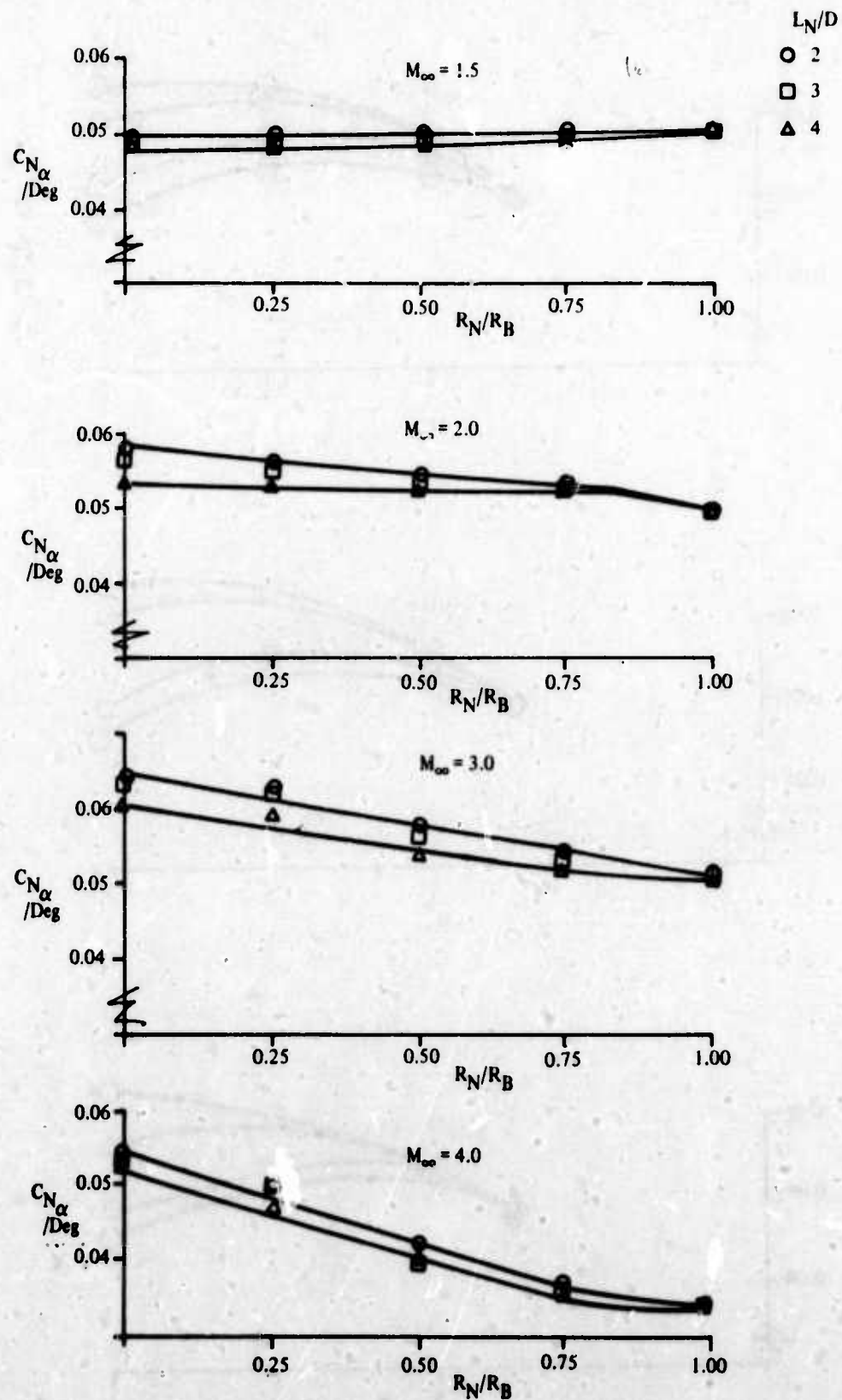


Figure 16. Variation of Normal Force Coefficient Slope with Nose Bluntness Ratio for Various Noses on 9-Caliber Midsection

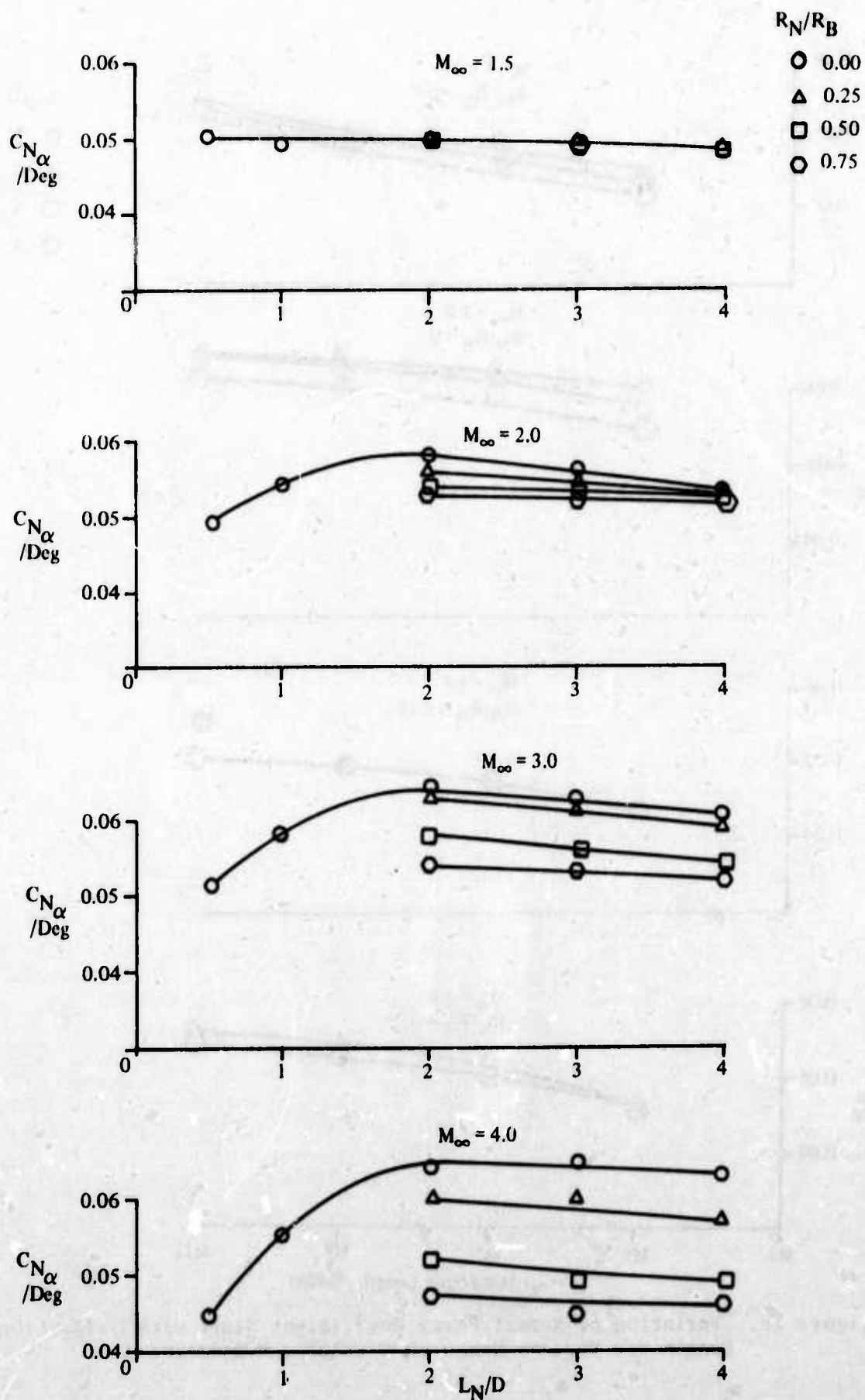


Figure 17. Variation of Normal Force Coefficient Slope with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection

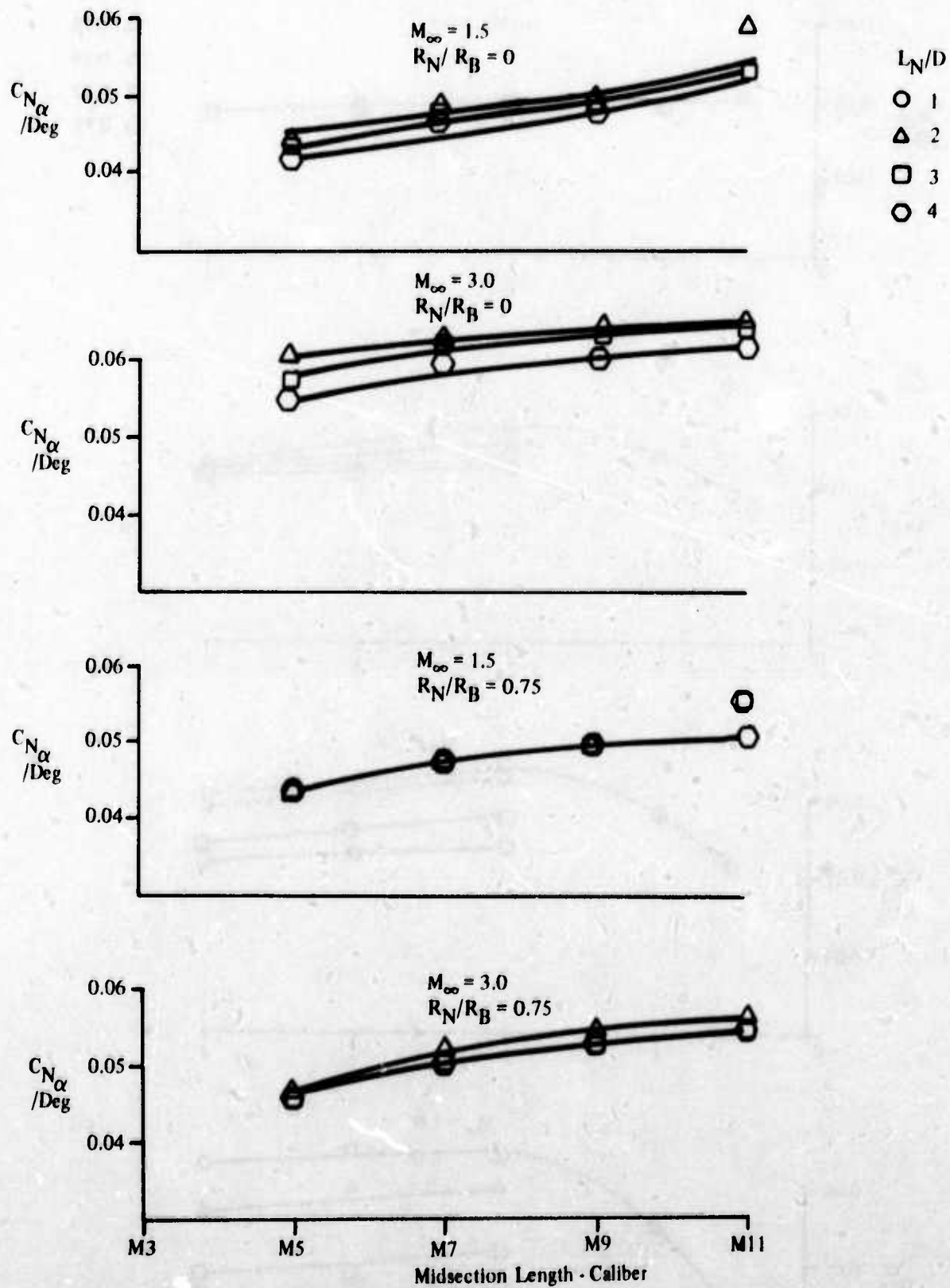


Figure 18. Variation of Normal Force Coefficient Slope with Midsection Length for Various Noses on 9-Caliber Midsection

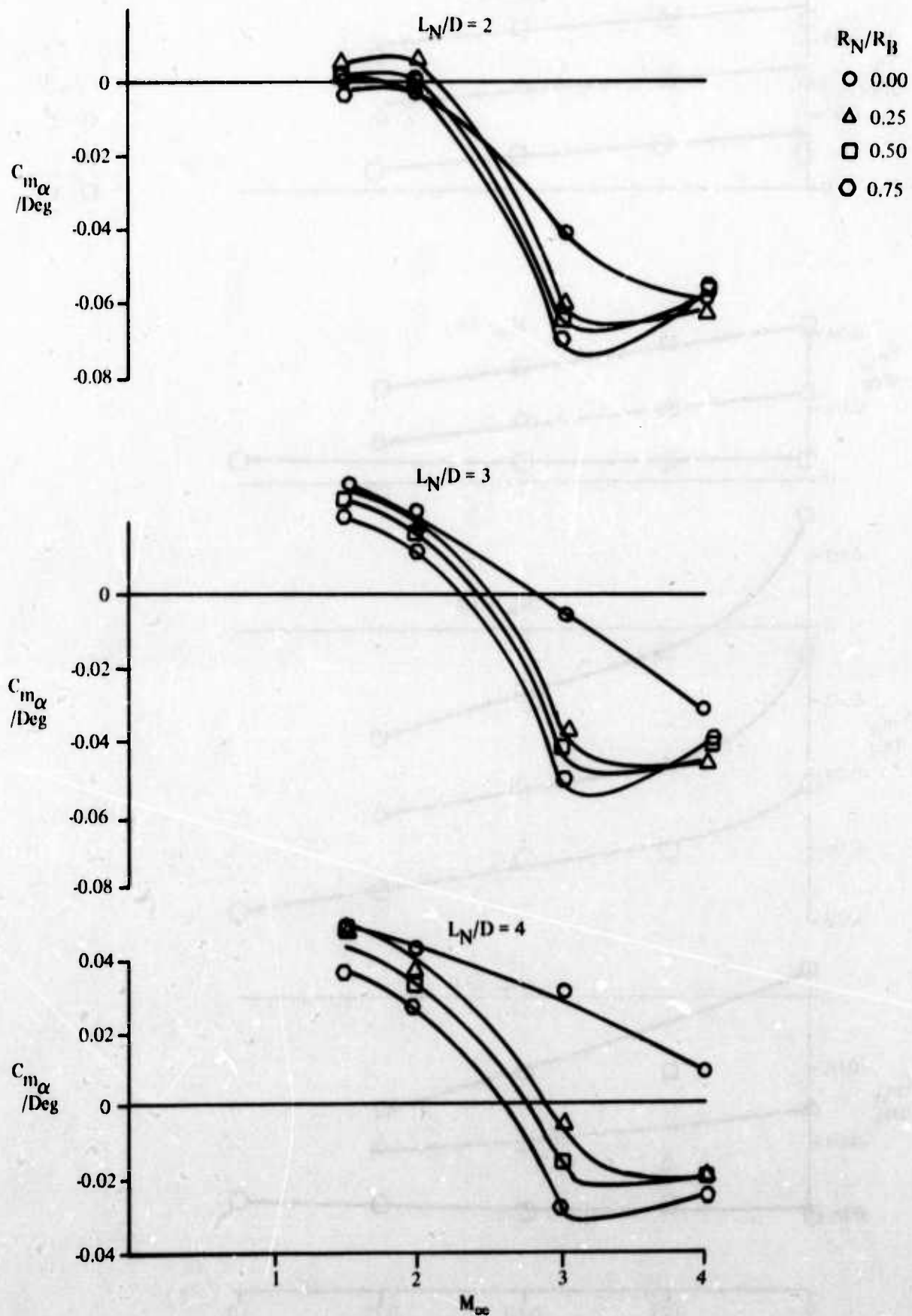


Figure 19. Variation of Pitching Moment Coefficient Slope with Mach Number for Various Noses on 9-Caliber Midsection

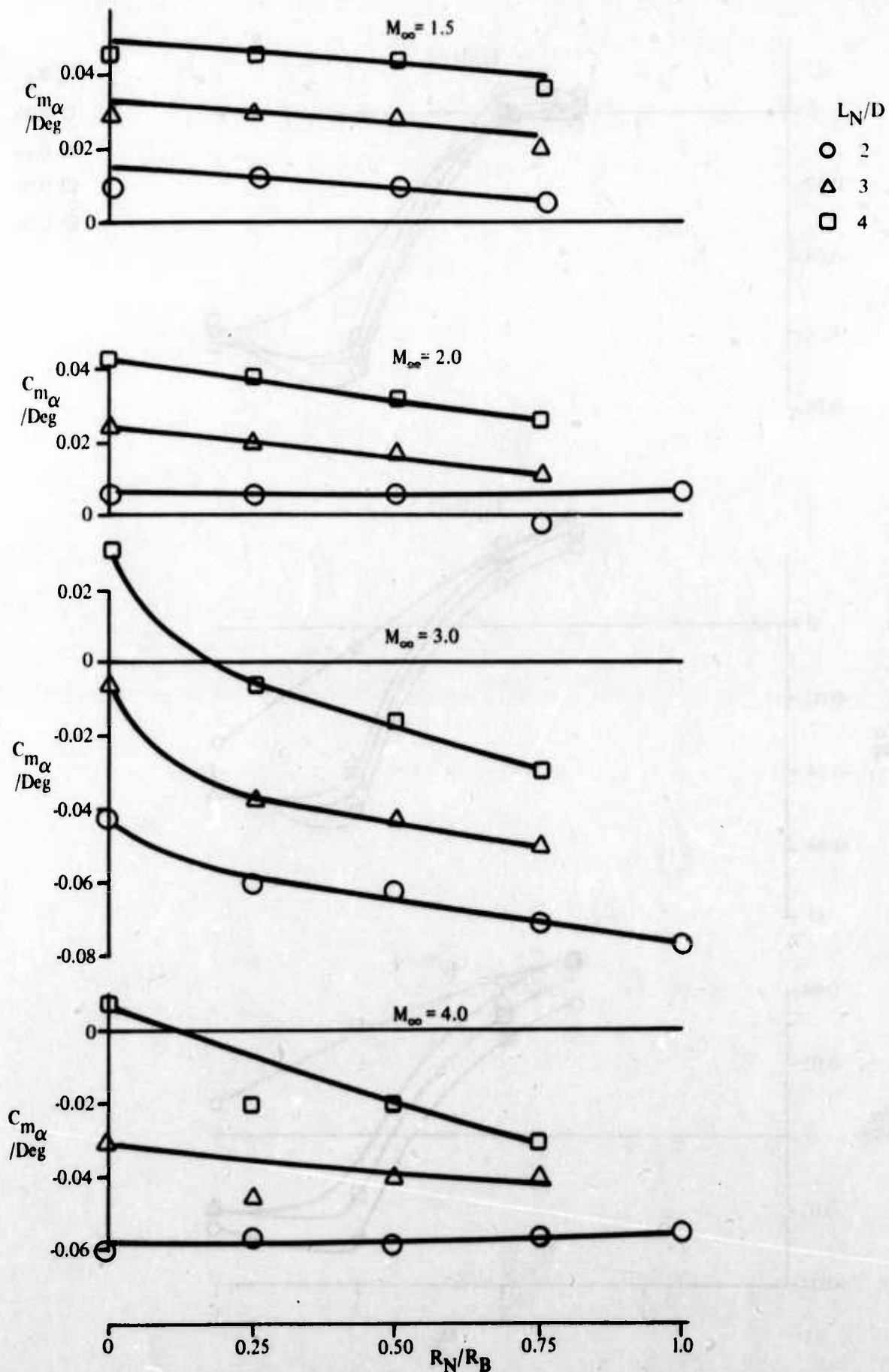


Figure 20. Variation of Pitching Moment Coefficient Slope with Nose Bluntness Ratio for Various Noses on 9-Caliber Midsection

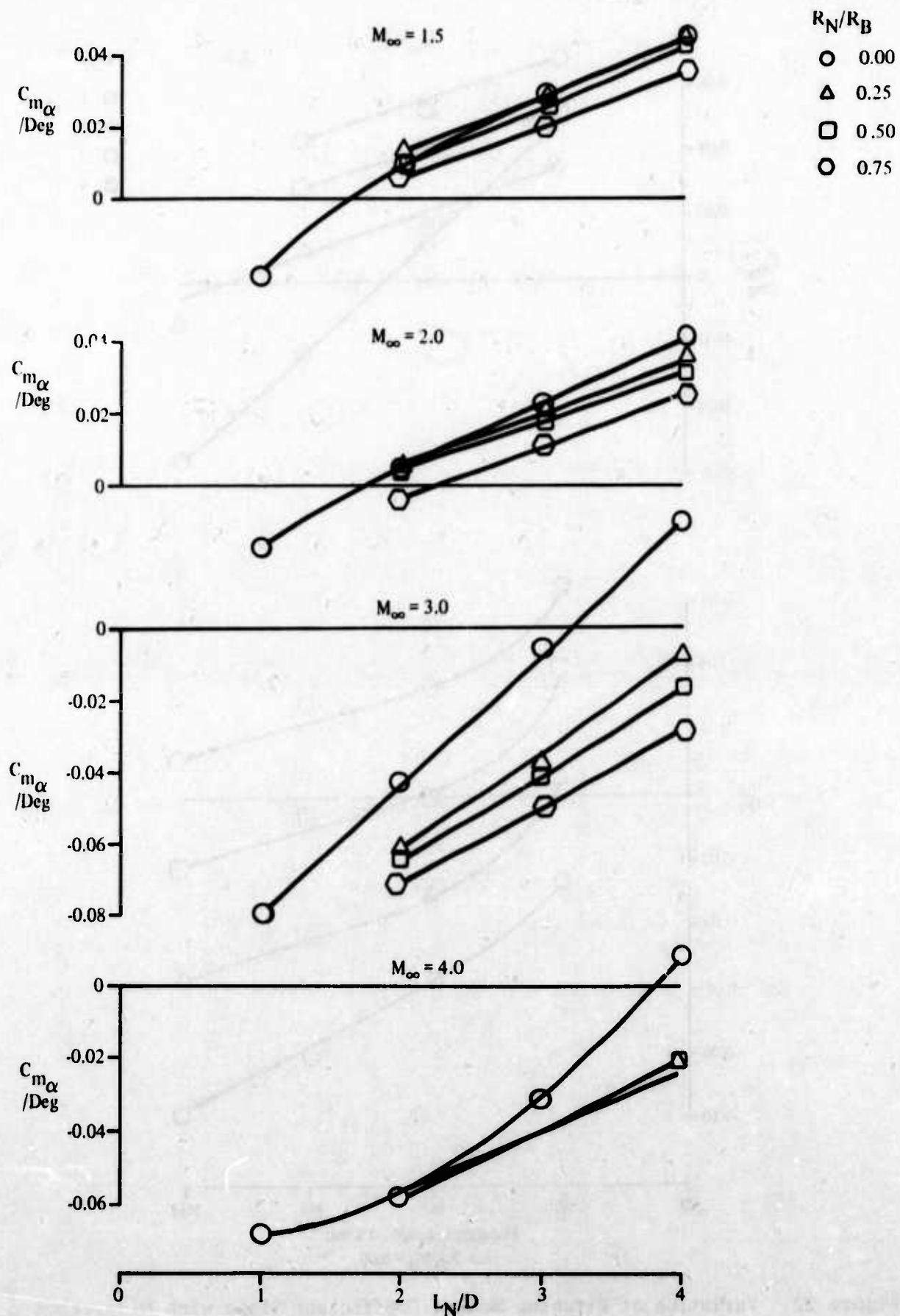


Figure 21. Variation of Pitching Moment Coefficient Slope with Nose Fineness Ratio for Various Noses on 9-Caliber Midsection

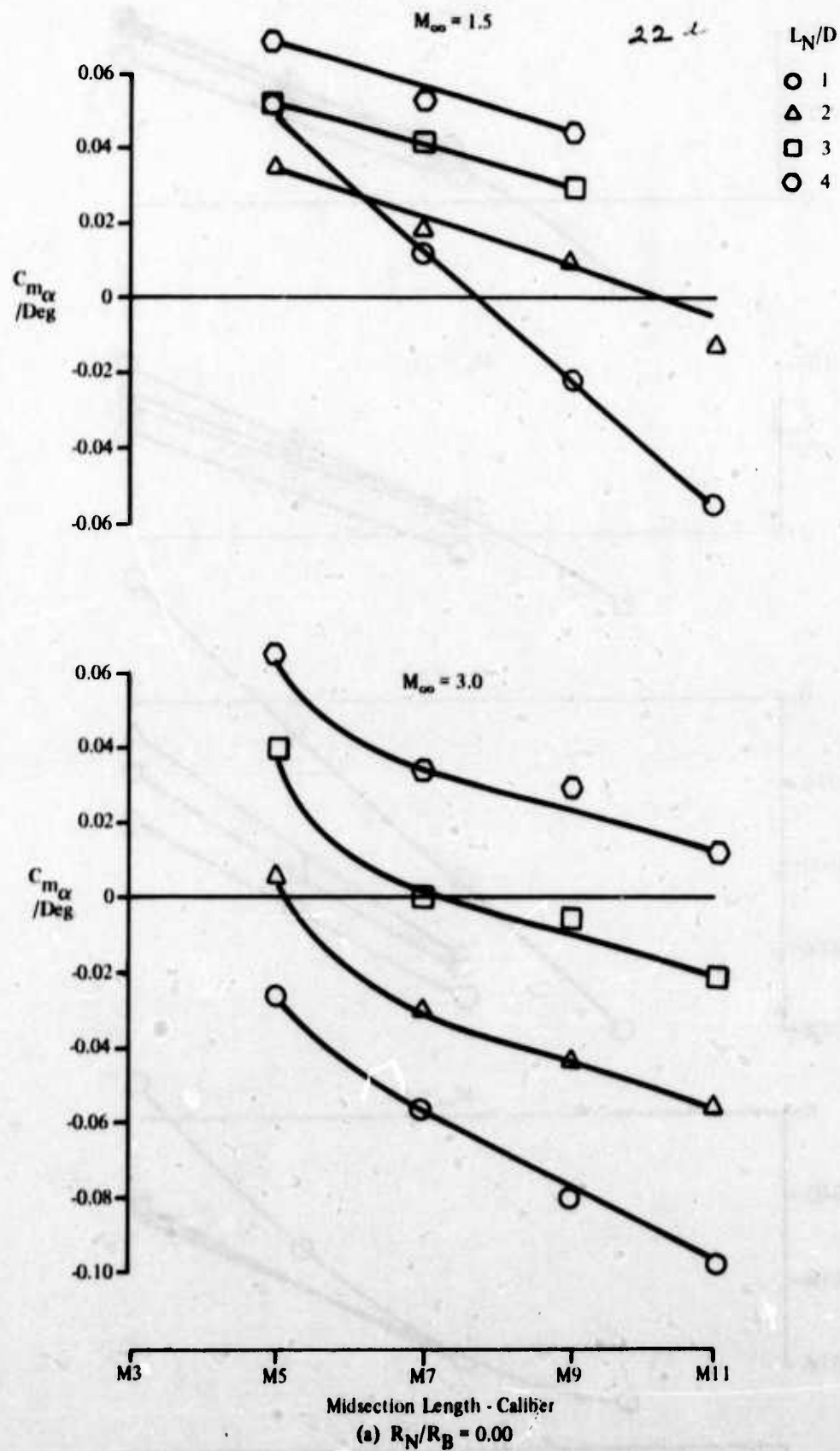


Figure 22. Variation of Pitching Moment Coefficient Slope with Midsection Length for Various Noses on 9-Caliber Midsection

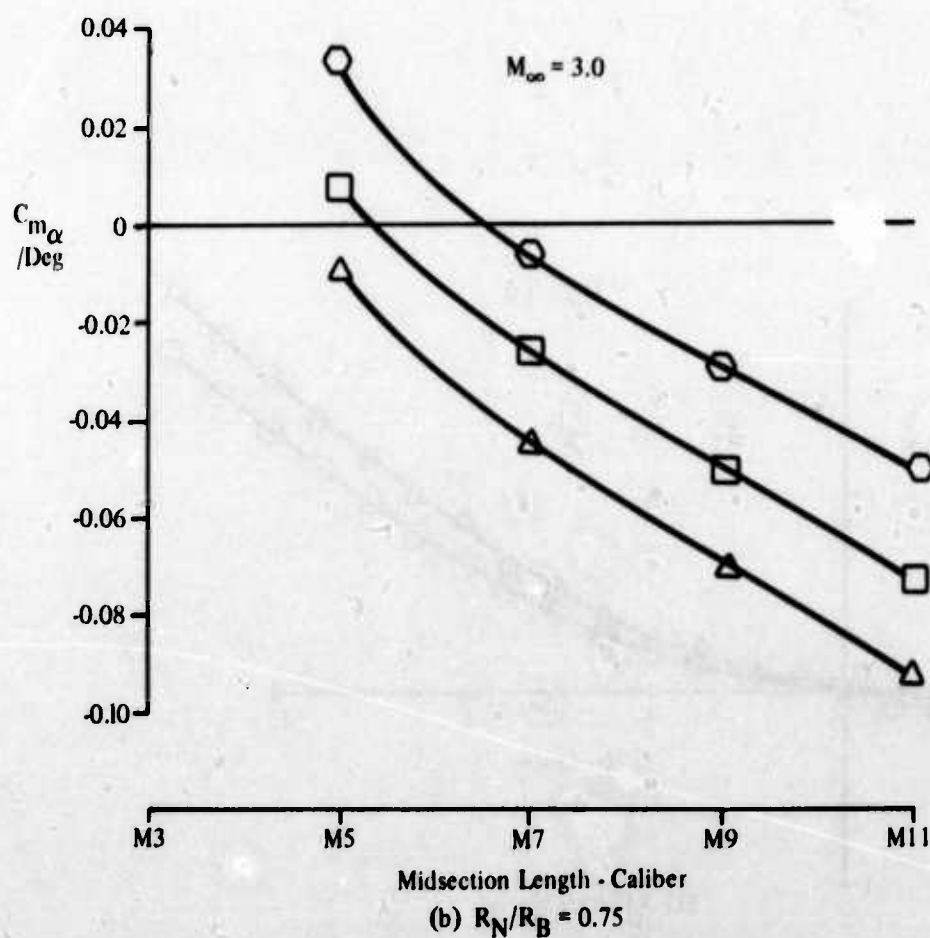
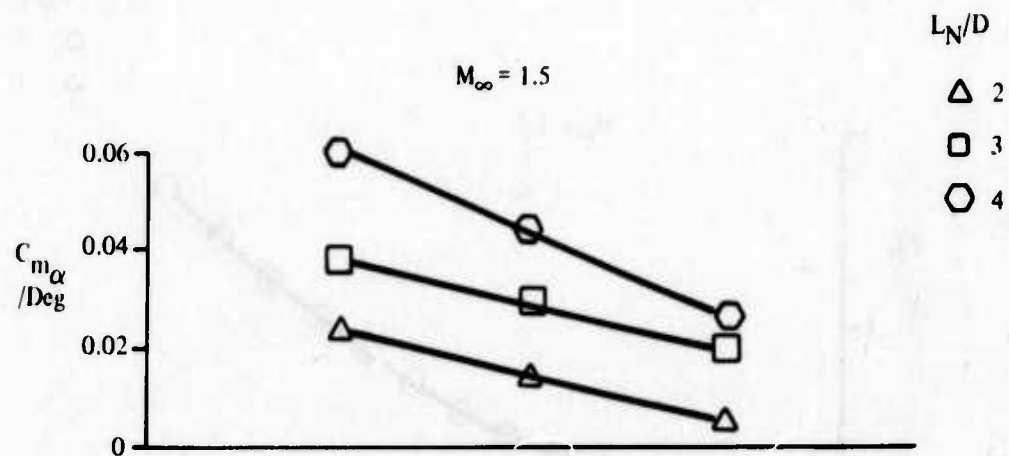


Figure 22. Variation of Pitching Moment Coefficient Slope with Midsection Length for Various Noses on 9-Caliber Midsection (Concluded)

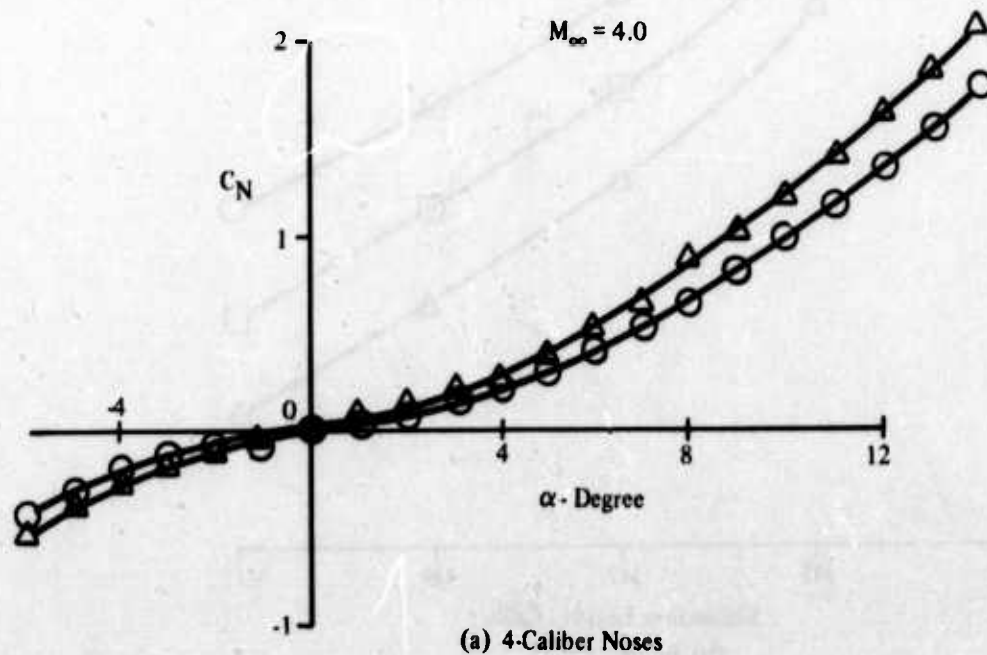
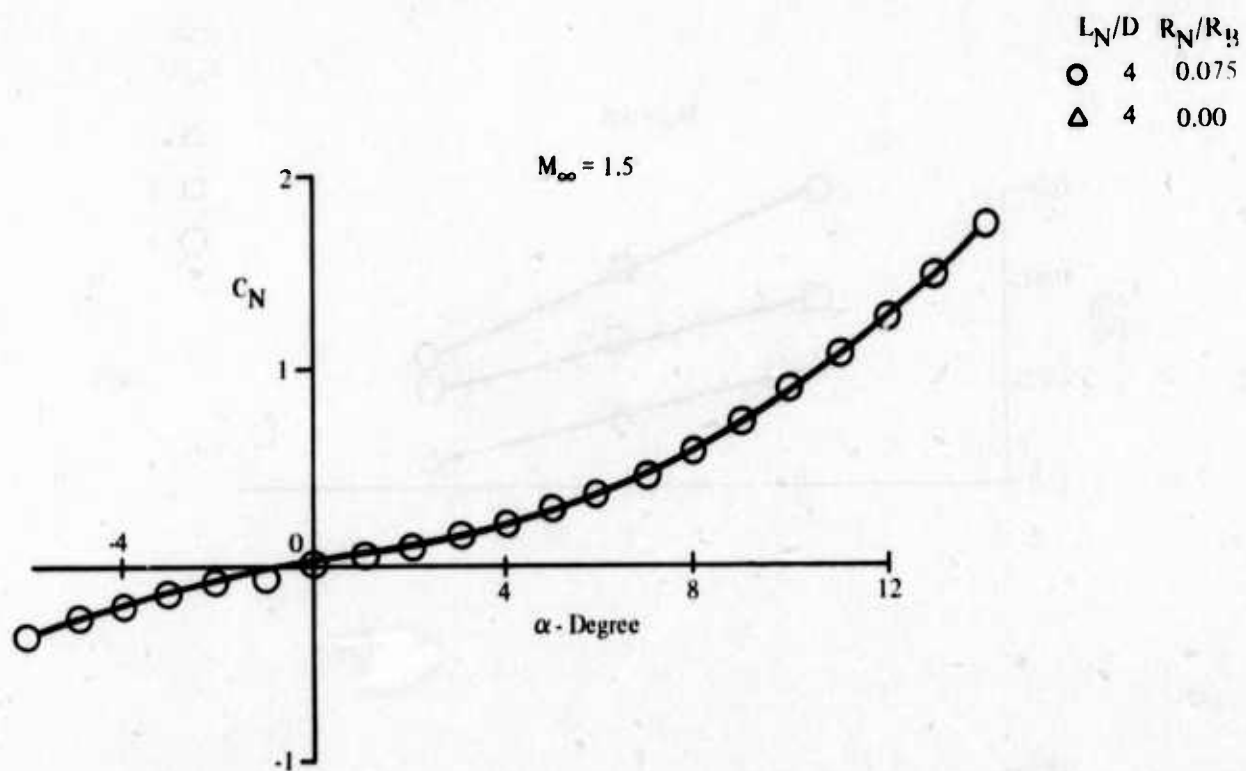
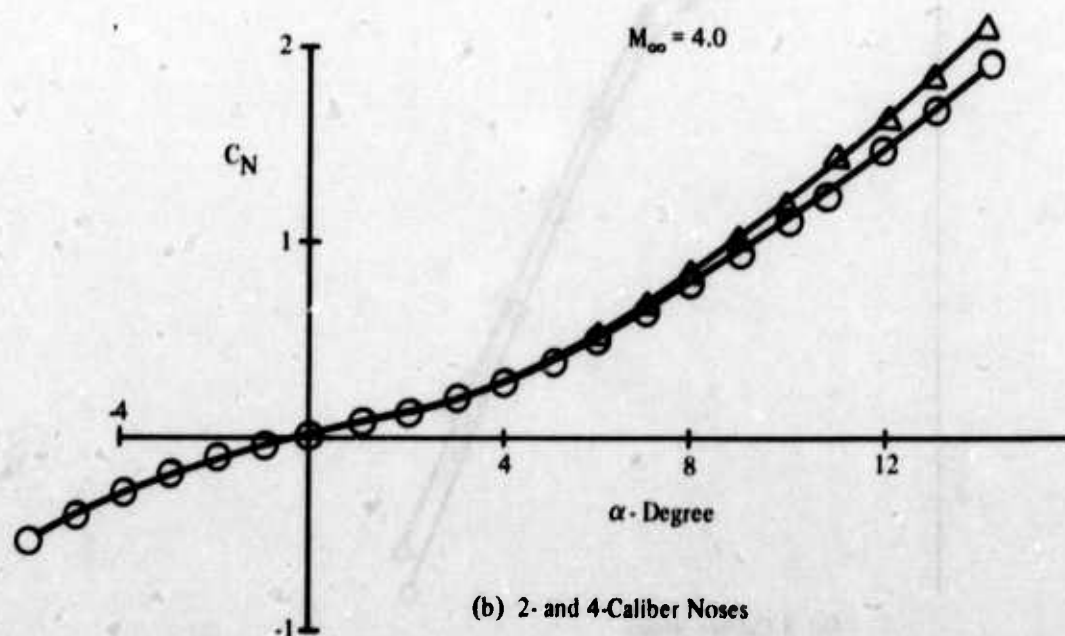
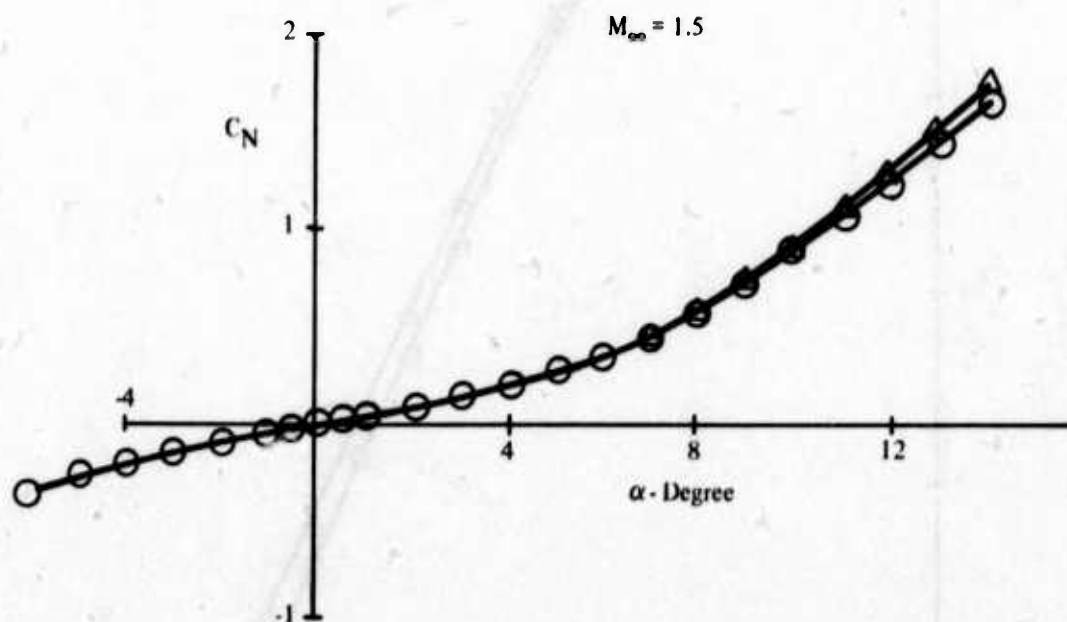


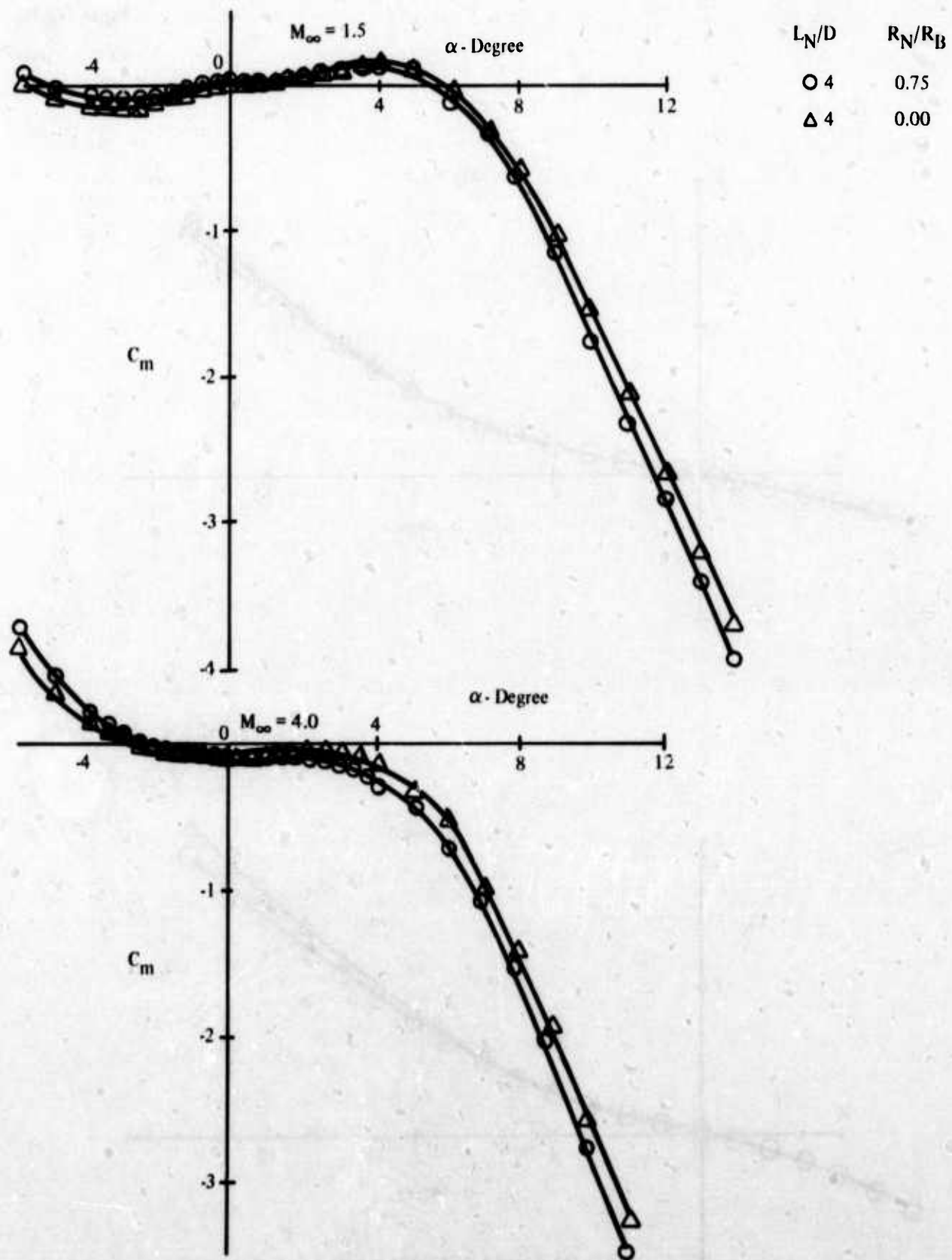
Figure 23. Variation of Normal Force Coefficient with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection

L_N/D	R_N/R_B
○ 2	0.00
△ 4	0.00



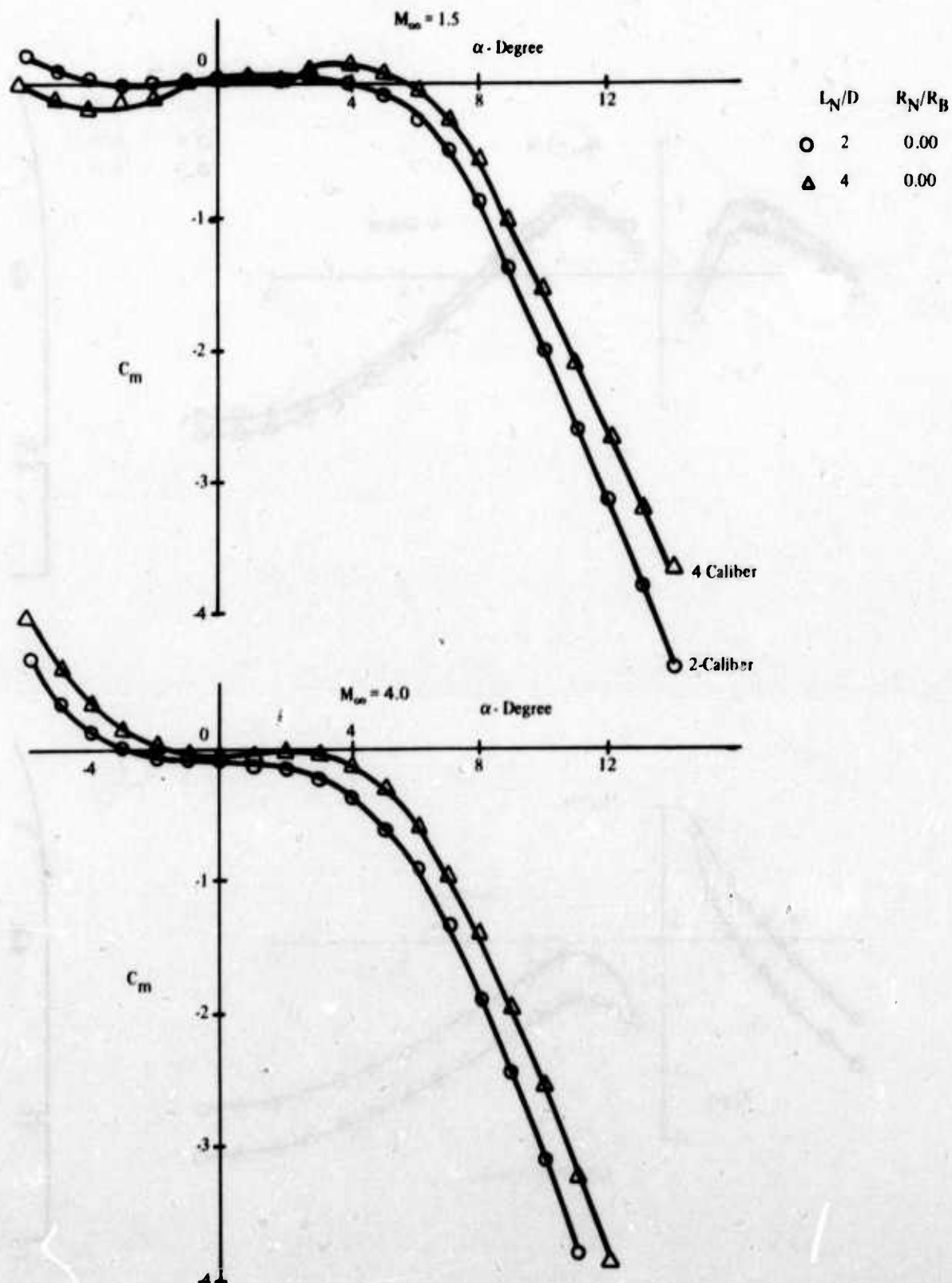
(b) 2- and 4-Caliber Noses

Figure 23. Variation of Normal Force Coefficient with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection (Concluded)



(a) 4-Caliber Noses

Figure 24. Variation of Pitching Moment Coefficient with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection



(b) 2- and 4-Caliber Noses

Figure 24. Variation of Pitching Moment Coefficient with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection (Concluded)

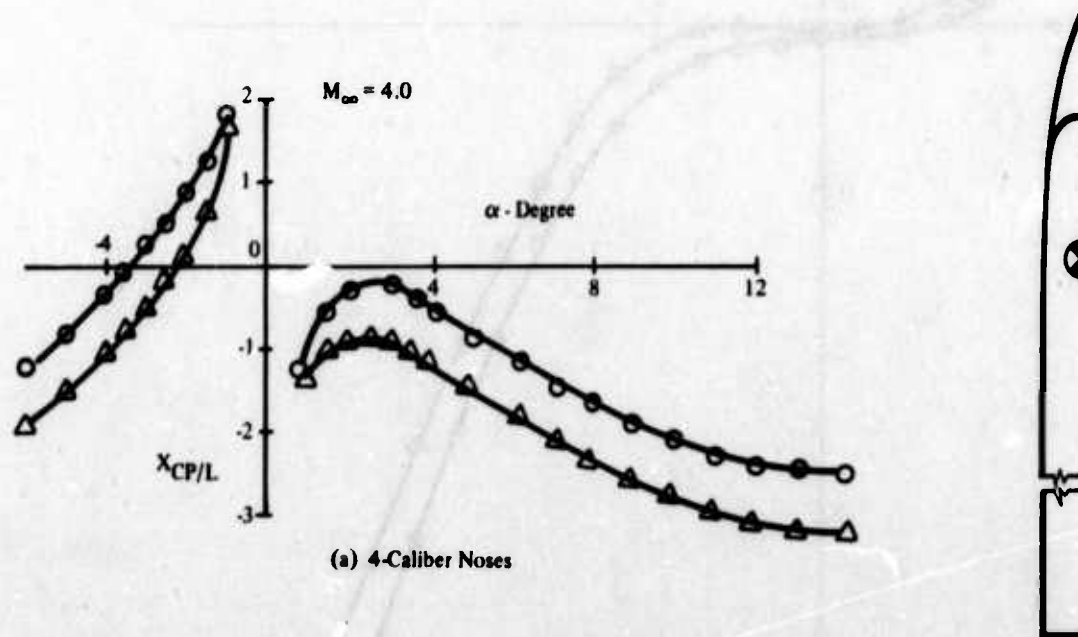
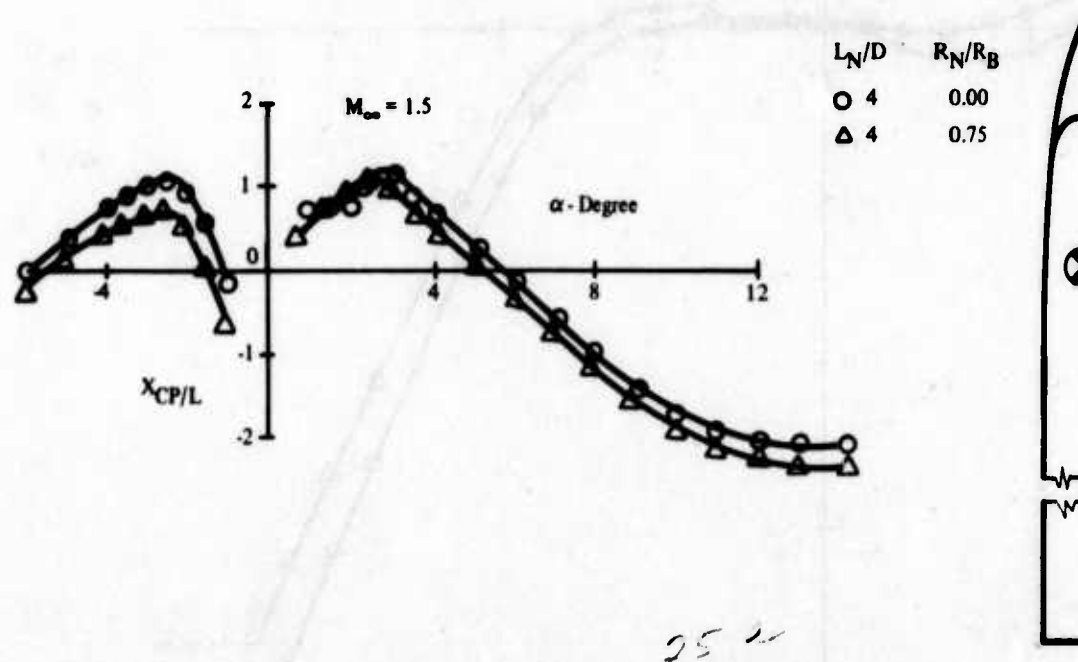


Figure 25. Variation of Center of Pressure with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection

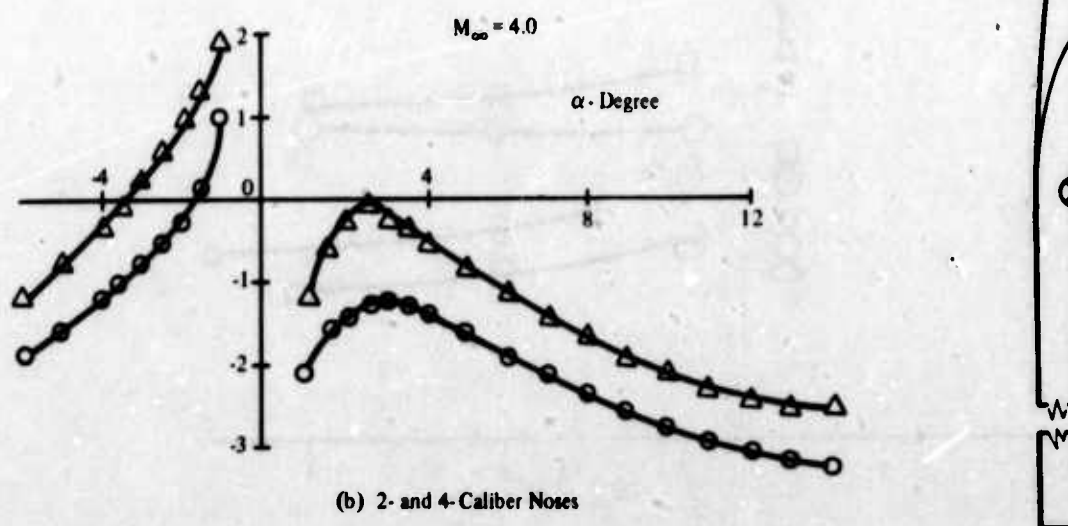
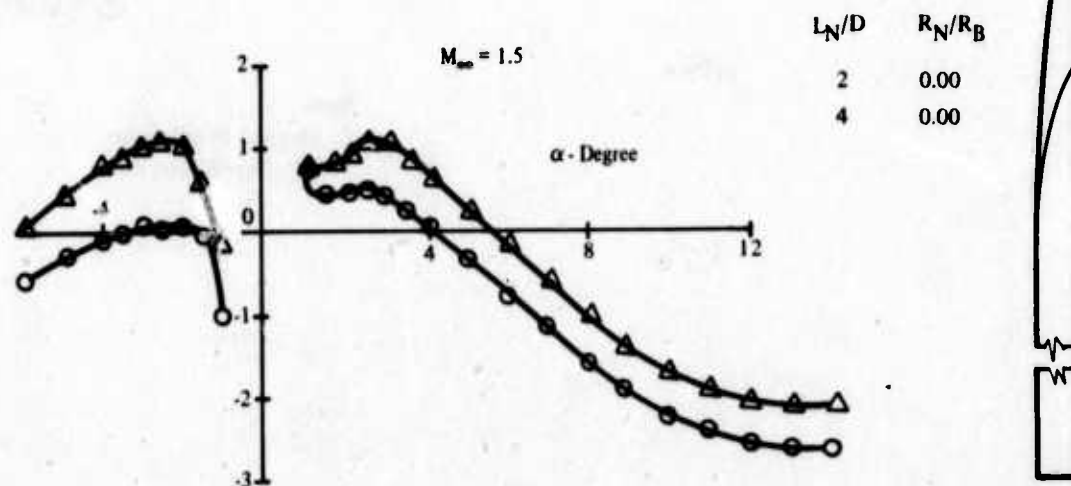


Figure 25. Variation of Center of Pressure with Angle of Attack for 2- and 4-Caliber Noses on 9-Caliber Midsection (Concluded)

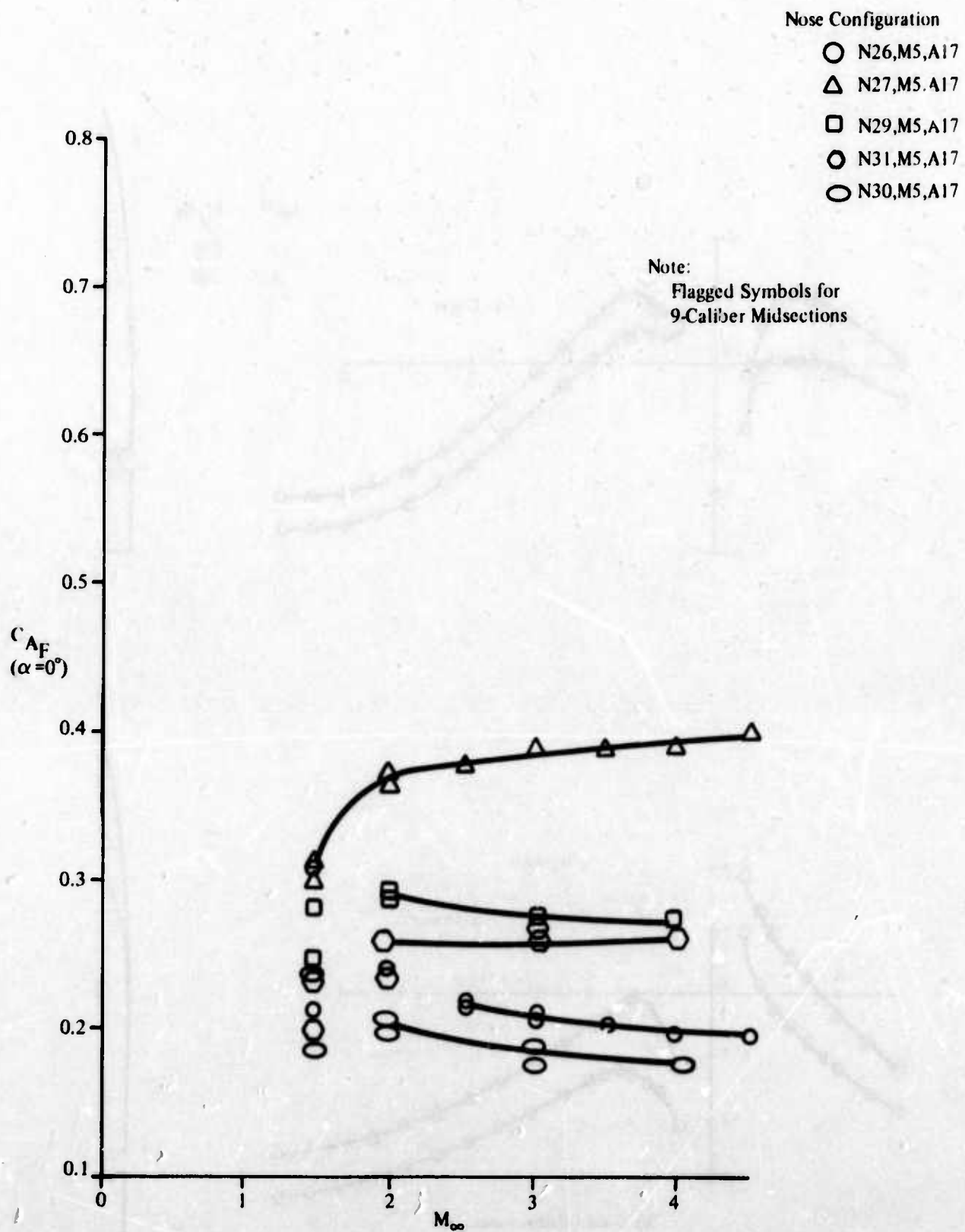


Figure 26. Variation of Forebody Axial Force Coefficient with Mach Number for 2.25-Caliber Noses on 5- and 9-Caliber Midsections

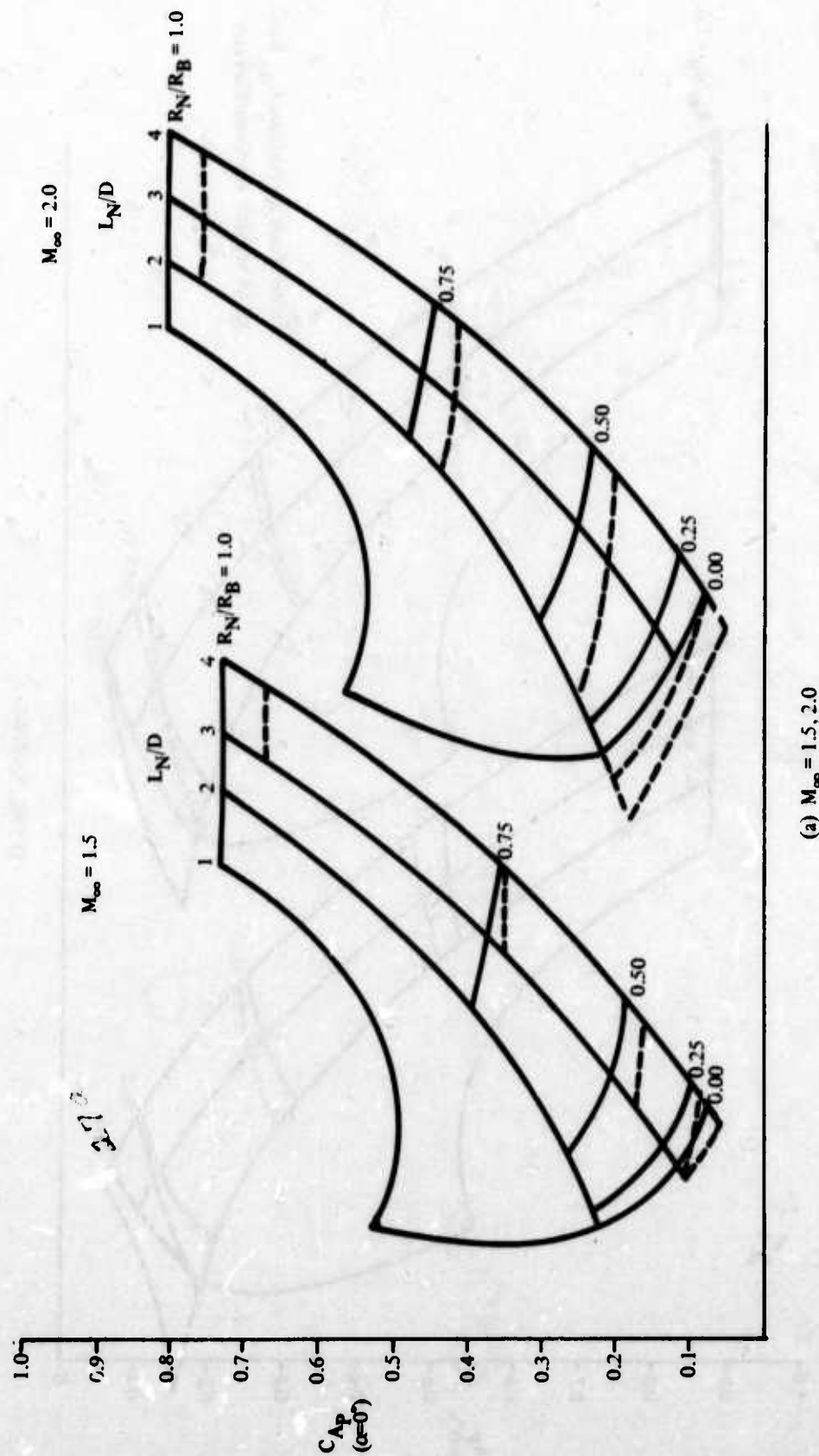


Figure 27. Comparison of Measured Nose Pressure Axial Force Coefficient with DATCOM Predictions for 2-, 3-, and 4-Caliber Noses

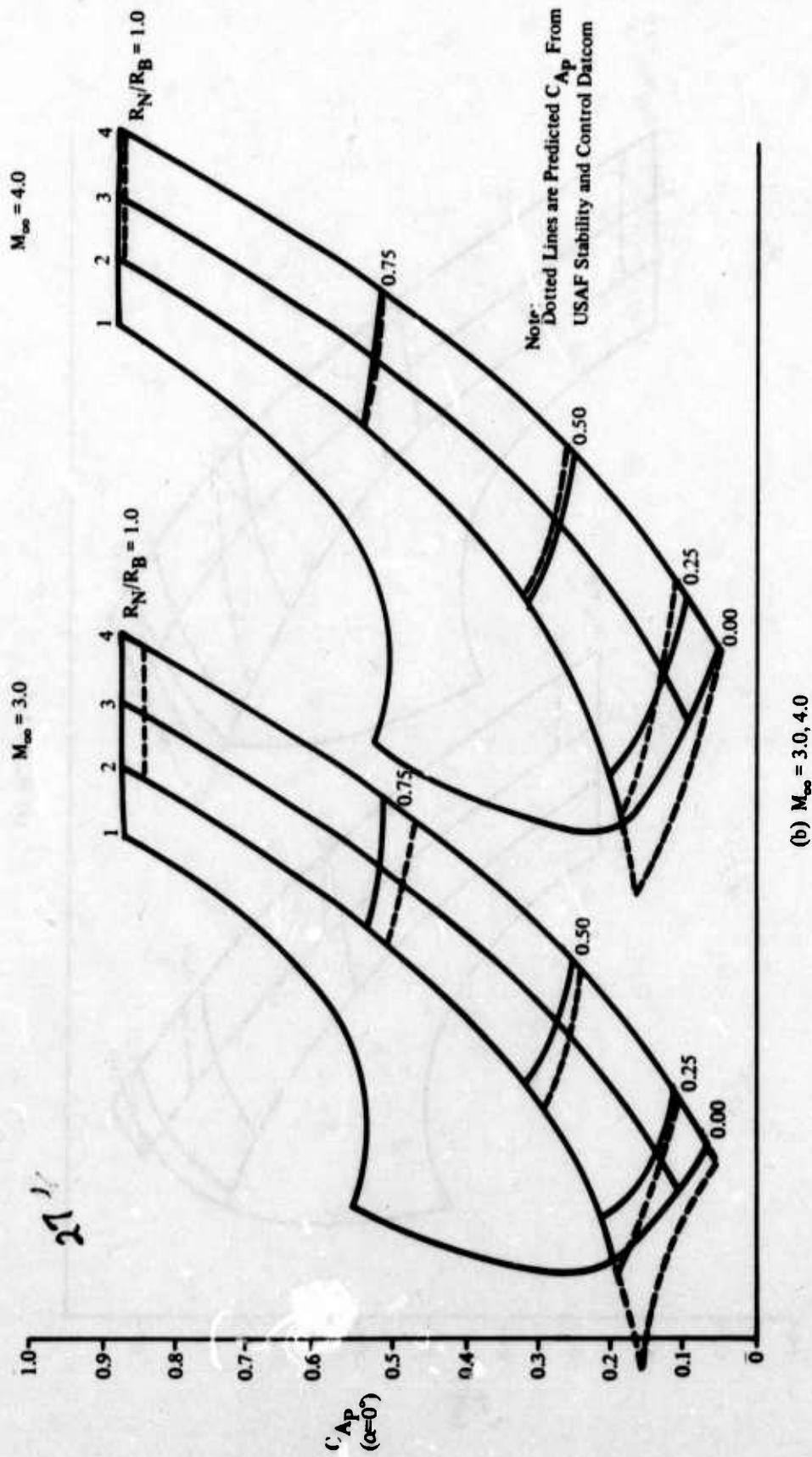


Figure 27. Comparison of Measured Nose Pressure Axial Force Coefficient with DATCOM Predictions for 2-, 3-, and 4-Caliber Noses (Concluded)

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APPENDIX A

(1T) Transonic Tabulated Data

PWT/(1T) RUN SCHEDULE

Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞
3	N22 M9	0.6	50	N16 M9	0.6	100	N14 M5	0.6	154	N21 M5	1.5
4	N22 M9	0.8	51	N16 M9	0.8	101	N14 M5	0.8	155	N21 M5	1.2
5	N22 M9	1.0	52	N16 M9	1.0	104	N14 M5	1.0	166	N22 M5	1.2
6	N22 M9	1.2	53	N16 M9	1.2	105	N14 M5	1.2	167	N22 M5	1.5
7	N22 M9	1.5	54	N16 M9	1.5	106	N14 M5	1.5	168	N22 M5	1.0
11	N25 M9	1.5	57	N17 M9	1.5	109	N15 M5	1.5	169	N22 M5	0.8
12	N25 M9	1.2	61	N17 M9	1.2	110	N15 M5	1.2	170	N22 M5	0.6
13	N25 M9	1.0	63	N17 M9	1.0	112	N15 M5	0.0	173	N21 M5	0.6
14	N25 M9	0.8	64	N17 M9	0.8	113	N15 M5	0.8	176	N21 M5	0.8
15	N25 M9	0.6	65	N17 M9	0.6	114	N15 M5	0.6	177	N21 M5	1.0
18	N23 M9	0.6	68	N18 M9	0.7	117	N17 M5	0.6	180	N23 M5	0.6
19	N23 M9	0.8	69	N18 M9	0.8	118	N17 M5	0.8	181	N23 M5	0.8
20	N23 M9	1.0	70	N18 M9	1.0	119	N17 M5	1.0	184	N23 M5	1.0
21	N23 M9	1.2	71	N18 M9	1.2	120	N17 M5	1.2	185	N23 M5	1.2
22	N23 M9	1.5	72	N18 M9	1.5	121	N17 M5	1.5	186	N23 M5	1.5
25	N24 M9	1.5	75	N19 M9	1.5	131	N18 M5	0.6	189	N24 M5	1.5
29	N24 M9	1.2	76	N19 M9	1.2	132	N18 M5	0.8	190	N24 M5	1.2
30	N24 M9	1.0	77	N19 M9	1.0	133	N18 M5	1.0	191	N24 M5	1.0
31	N24 M9	0.8	78	N19 M9	0.8	134	N18 M5	1.2	192	N24 M5	0.8
32	N24 M9	0.6	79	N19 M9	0.6	135	N18 M5	1.5	193	N24 M5	0.6
35	N14 M9	0.6	84	N20 M9	0.6	138	N19 M5	1.5	196	N25 M5	0.6
36	N14 M9	0.8	85	N20 M9	0.8	139	N19 M5	1.2	197	N25 M5	0.8
37	N14 M9	1.0	86	N20 M9	1.0	140	N19 M5	1.0	198	N25 M5	1.0
39	N14 M9	1.2	87	N20 M9	1.2	143	N19 M5	0.8	201	N25 M5	1.2
40	N14 M9	1.5	90	N20 M9	1.5	144	N19 M5	0.6	202	N25 M5	1.5
43	N15 M9	1.5	93	N21 M9	1.5	147	N20 M5	0.6	205	N16 M5	1.5
44	N15 M9	1.2	94	N21 M9	1.2	148	N20 M5	0.8	206	N16 M5	1.2
45	N15 M9	1.0	95	N21 M9	1.0	149	N20 M5	1.0	207	N16 M5	1.0
46	N15 M9	0.8	96	N21 M9	0.8	150	N20 M5	1.2	208	N16 M5	0.8
47	N15 M9	0.6	97	N21 M9	0.6	151	N20 M5	1.5	209	N16 M5	0.6

CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
N022M094117	3333333333333333	.60	-2.0253	0.0000	-.0209	.045	.002	.084	.000	.494	.74	.135
N022M094117		.60	-1.0013	0.0000	-.0509	.045	.002	.091	.002	-1.310	.266	.120
N022M094117		.60	1.0030	0.0000	-.0234	.091	.002	.095	.001	-1.0506	.253	.112
N022M094117		.60	2.0305	0.0000	.0214	.149	.001	.095	.003	2.006	.251	.117
N022M094117		.60	3.0492	0.0000	.0247	.163	.001	.075	.004	1.198	.264	.117
N022M094117		.60	4.0821	0.0000	.0206	.163	.006	.062	.004	.343	.282	.116
N022M094117		.60	5.1157	0.0000	.0627	.166	.017	.062	.005	.385	.294	.112
N022M094117		.60	6.1504	0.0000	.0747	.143	.031	.094	.007	-1.060	.306	.107
N022M094117		.60	7.1842	0.0000	.0953	.127	.053	.076	.008	-1.033	.325	.103
N022M094117		.60	8.2179	0.0000	.1275	-.1	.138	.061	.006	-1.033	.325	.093
N022M094117		.60	9.2516	0.0000	-.1	.1275	.138	.076	.006	-1.033	.325	.083
N022M094117		.60	10.2853	0.0000	.095	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	11.319	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	12.3527	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	13.3864	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	14.4201	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	15.4538	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	16.4875	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	17.5212	0.0000	.092	.144	.001	.183	.001	-1.139	.326	.115
N022M094117		.60	18.5549	0.0000	.091	.122	.001	.108	.000	.514	.326	.115
N022M094117		.60	19.5886	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	20.6223	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	21.656	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	22.6897	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	23.7234	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	24.7571	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	25.7908	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	26.8245	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	27.8582	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	28.8919	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	29.9256	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	30.9593	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	31.993	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	33.0267	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	34.0604	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	35.0941	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	36.1278	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	37.1615	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	38.1952	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	39.2289	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	40.2626	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	41.2963	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	42.33	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	43.3637	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	44.3974	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	45.4311	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	46.4648	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	47.4985	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	48.5322	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	49.5659	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	50.5996	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	51.6333	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	52.667	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	53.7007	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	54.7344	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	55.7681	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	56.8018	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	57.8355	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	58.8692	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	59.9029	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	60.9366	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	61.9703	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	63.004	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	64.0377	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	65.0714	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	66.1051	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	67.1388	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	68.1725	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	69.2062	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	70.2399	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	71.2736	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	72.3073	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	73.341	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	74.3747	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	75.4084	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	76.4421	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	77.4758	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	78.5095	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	79.5432	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	80.5769	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	81.6106	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	82.6443	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	83.678	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	84.7117	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	85.7454	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	86.7791	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	87.8128	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	88.8465	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	89.8802	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	90.9139	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	91.9476	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	92.9813	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	94.015	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	95.0487	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	96.0824	0.0000	.071	.075	.002	.085	.002	-1.225	.271	.118
N022M094117		.60	97.1161	0.0000	.088	.103	.000	.083	.002	.327	.275	.120
N022M094117		.60	98.1498	0.0000	.071	.116	.002	.080	.002	1.016	.279	.119
N022M094117		.60	99.1835	0.0000	.092	.109	.001	.075	.001	.613	.291	.125
N022M094117		.60	100.2172	0.0000	.072	.104	.002	.082	.000	.514	.309	.115
N022M094117		.60	101.2509	0.0000	.091	.122	.001	.108	.000	.514	.316	.115
N022M094117		.60	102.2846	0.0000	.092	.144	.001	.183	.001	-1.139	.327	.107
N022M094117		.60	103.3183	0.0000	.103	-.1	.023	.005	.004	-1.139	.337	.097
N022M094117		.60	104.352	0.0000	1.032	-.1	.041	.005	.004	-1.139	.337	.087
N022M094117		.60	105.3857	0.0000	.092	.05	.002	.076	.003	.585	.6	.115
N022M094117		.60	106.41									

[illegible]

[illegible]

CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
N18M09A17	68	.60	-2.0243	0.0000	0.0000	.039	.0001	.079	.003	.500	.266	.120
N18M09A17	68	.60	-1.0010	0.0000	0.0000	.056	.0001	.080	.004	-1.441	.265	.120
N18M09A17	68	.60	1.2010	0.0000	0.0000	.065	.0002	.097	.005	16.887	.264	.120
N18M09A17	68	.60	3.0036	0.0000	0.0000	.071	.0004	.097	.005	.854	.266	.120
N18M09A17	68	.60	5.0073	0.0000	0.0000	.053	.0001	.064	.004	.190	.270	.120
N18M09A17	68	.60	8.0143	0.0000	0.0000	.096	.0001	.150	.004	.336	.280	.120
N18M09A17	68	.60	10.1224	0.0000	0.0000	.317	.0003	.300	.006	.772	.308	.110
N18M09A17	68	.60	12.1224	0.0000	0.0000	.693	.0005	.300	.009	.148	.313	.100
N18M09A17	68	.60	14.1224	0.0000	0.0000	.1.611	.005	.305	.009	-1.473	.334	.100
N18M09A17	69	.60	-2.0344	0.0000	0.0000	.065	.0003	.054	.003	.782	.286	.120
N18M09A17	69	.60	-1.0007	0.0000	0.0000	.055	.0002	.067	.004	-1.449	.285	.120
N18M09A17	69	.60	1.0013	0.0000	0.0000	.065	.0003	.067	.004	23.280	.285	.120
N18M09A17	69	.60	3.0055	0.0000	0.0000	.045	.0003	.061	.004	.510	.286	.120
N18M09A17	69	.60	5.0114	0.0000	0.0000	.024	.0004	.037	.005	.210	.286	.120
N18M09A17	69	.60	7.0144	0.0000	0.0000	.152	.0002	.150	.005	.527	.287	.120
N18M09A17	69	.60	9.0222	0.0000	0.0000	.782	.0004	.154	.005	.976	.291	.110
N18M09A17	69	.60	11.0236	0.0000	0.0000	.1.815	.0007	.154	.006	.309	.261	.110
N18M09A17	69	.60	14.0236	0.0000	0.0000	.1.815	.0007	.154	.006	-1.592	.261	.110
N18M09A17	70	1.00	-2.0419	0.0000	0.0000	.142	.0010	.056	.003	.309	.265	.120
N18M09A17	70	1.00	-1.0025	0.0000	0.0000	.052	.0001	.066	.003	1.238	.265	.120
N18M09A17	70	1.00	1.0032	0.0000	0.0000	.052	.0001	.066	.003	.344	.265	.120
N18M09A17	70	1.00	3.0062	0.0000	0.0000	.100	.0001	.039	.003	.520	.271	.120
N18M09A17	70	1.00	5.0142	0.0000	0.0000	.186	.0004	.039	.003	.709	.287	.120
N18M09A17	70	1.00	7.0275	0.0000	0.0000	.363	.0008	.069	.005	.144	.409	.120
N18M09A17	70	1.00	9.0344	0.0000	0.0000	.693	.0015	.069	.006	.603	.427	.120
N18M09A17	70	1.00	11.0344	0.0000	0.0000	.1.611	.002	.069	.006	.1.691	.438	.120
N18M09A17	70	1.00	14.0344	0.0000	0.0000	.1.611	.002	.069	.006	.1.691	.438	.120
N18M09A17	71	1.20	-2.0504	0.0000	0.0000	.073	.0010	.135	.001	.832	.445	.150
N18M09A17	71	1.20	-1.0026	0.0000	0.0000	.075	.0007	.123	.001	1.767	.446	.150
N18M09A17	71	1.20	1.0032	0.0000	0.0000	.063	.0007	.114	.001	.275	.450	.150
N18M09A17	71	1.20	3.0060	0.0000	0.0000	.020	.0005	.114	.001	.223	.461	.150
N18M09A17	71	1.20	5.0120	0.0000	0.0000	.193	.0005	.101	.002	.180	.470	.150
N18M09A17	71	1.20	7.0246	0.0000	0.0000	.322	.0005	.193	.002	.572	.491	.150
N18M09A17	71	1.20	9.0351	0.0000	0.0000	.644	.0005	.301	.005	.1.033	.504	.150
N18M09A17	71	1.20	11.0351	0.0000	0.0000	.1.214	.0005	.301	.005	.1.510	.513	.150
N18M09A17	71	1.20	14.0351	0.0000	0.0000	.1.214	.0005	.301	.005	.1.510	.513	.150

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CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
N22M05A17	170	.60	-2.010	0.000	.087	.060	.006	.023	.001	.781	.226	.076
N22M05A17	170	.60	-1.002	0.000	.049	.037	.003	.006	.002	.420	.221	.073
N22M05A17	170	.60	1.013	0.000	.069	.094	.003	.009	.000	.151	.217	.064
N22M05A17	170	.60	2.035	0.000	.146	.150	.003	.012	.000	.189	.215	.061
N22M05A17	170	.60	3.047	0.000	.234	.261	.003	.010	.001	.336	.214	.061
N22M05A17	170	.60	4.065	0.000	.331	.332	.003	.009	.001	.790	.219	.065
N22M05A17	170	.60	5.099	0.000	.440	.384	.003	.025	.003	.157	.252	.053
N22M05A17	170	.60	6.178	0.000	.582	.319	.010	.010	.003	.159	.261	.053
N22M05A17	170	.60	7.220	0.000	.735	.215	.031	.054	.004	.548	.269	.039
N22M05A17	170	.60	-2.014	0.000	.072	.037	.001	.023	.001	.292	.290	.042
N22M05A17	173	.60	-1.002	0.000	.036	.012	.001	.023	.002	.513	.242	.094
N22M05A17	173	.60	1.023	0.000	.045	.016	.002	.029	.002	.325	.242	.096
N22M05A17	173	.60	2.030	0.000	.091	.047	.002	.040	.003	.864	.237	.092
N22M05A17	173	.60	3.048	0.000	.160	.080	.002	.071	.003	.377	.237	.092
N22M05A17	173	.60	4.058	0.000	.245	.096	.002	.099	.003	.541	.240	.089
N22M05A17	173	.60	5.092	0.000	.354	.093	.002	.100	.002	.140	.240	.088
N22M05A17	173	.60	6.168	0.000	.487	.061	.001	.124	.000	.386	.251	.079
N22M05A17	173	.60	7.198	0.000	.722	.121	.016	.124	.001	.016	.274	.068
N22M05A17	173	.60	-2.015	0.000	.072	.037	.001	.023	.001	.357	.286	.052
N22M05A17	176	.80	-2.003	0.000	.030	.002	.002	.029	.001	.185	.273	.105
N22M05A17	176	.80	1.018	0.000	.042	.014	.002	.029	.001	.269	.272	.104
N22M05A17	176	.80	2.033	0.000	.084	.041	.002	.055	.002	.985	.271	.102
N22M05A17	176	.80	3.049	0.000	.165	.063	.002	.073	.002	.603	.275	.103
N22M05A17	176	.80	4.092	0.000	.260	.066	.002	.093	.002	.519	.275	.098
N22M05A17	176	.80	5.132	0.000	.366	.054	.004	.123	.001	.371	.289	.097
N22M05A17	176	.80	6.167	0.000	.491	.046	.005	.154	.001	.517	.306	.094
N22M05A17	176	.80	7.205	0.000	.635	.024	.008	.183	.001	.148	.315	.091
N22M05A17	176	.80	-2.014	0.000	.072	.037	.001	.023	.001	.276	.323	.080
N22M05A17	176	.80	-1.002	0.000	.030	.002	.002	.029	.001	.476	.323	.073
N22M05A17	177	1.00	-2.031	0.000	.046	.028	.002	.027	.001	.06	.382	.150
N22M05A17	177	1.00	1.022	0.000	.043	.027	.002	.027	.001	.428	.382	.149
N22M05A17	177	1.00	2.049	0.000	.091	.037	.003	.030	.001	.555	.382	.149
N22M05A17	177	1.00	3.059	0.000	.135	.049	.004	.044	.001	.366	.384	.146
N22M05A17	177	1.00	4.112	0.000	.205	.056	.005	.052	.001	.261	.389	.146
N22M05A17	177	1.00	5.172	0.000	.296	.067	.006	.069	.001	.161	.454	.145
N22M05A17	177	1.00	6.301	0.000	.444	.091	.009	.094	.001	.165	.470	.137
N22M05A17	177	1.00	7.358	0.000	.594	.124	.010	.115	.001	.222	.470	.122

CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
0005411	193	.00	-2.025	0.000	.76	.75	.005	5	.00	.97	76	.093
0005411	193	.00	-1.010	0.000	.76	.75	.005	5	.00	.97	76	.103
0005411	193	.00	1.022	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	192	.00	1.037	0.000	.76	.75	.005	5	.00	.97	76	.107
0005411	192	.00	3.052	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	192	.00	3.066	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	192	.00	6.100	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	192	.00	9.149	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	192	.00	12.235	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	192	.00	14.312	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	193	.60	-2.006	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	193	.60	-1.004	0.000	.76	.75	.005	5	.00	.97	76	.104
0005411	193	.60	1.026	0.000	.76	.75	.005	5	.00	.97	76	.104
0005411	193	.60	3.035	0.000	.76	.75	.005	5	.00	.97	76	.109
0005411	193	.60	6.067	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	193	.60	9.154	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	193	.60	12.224	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	196	.60	-2.003	0.000	.76	.75	.005	5	.00	.97	76	.098
0005411	196	.60	-1.002	0.000	.76	.75	.005	5	.00	.97	76	.099
0005411	196	.60	1.022	0.000	.76	.75	.005	5	.00	.97	76	.093
0005411	196	.60	3.034	0.000	.76	.75	.005	5	.00	.97	76	.094
0005411	196	.60	6.069	0.000	.76	.75	.005	5	.00	.97	76	.096
0005411	196	.60	9.137	0.000	.76	.75	.005	5	.00	.97	76	.097
0005411	196	.60	12.200	0.000	.76	.75	.005	5	.00	.97	76	.097
0005411	197	.60	-2.014	0.000	.76	.75	.005	5	.00	.97	76	.103
0005411	197	.60	-1.013	0.000	.76	.75	.005	5	.00	.97	76	.103
0005411	197	.60	1.033	0.000	.76	.75	.005	5	.00	.97	76	.103
0005411	197	.60	3.060	0.000	.76	.75	.005	5	.00	.97	76	.101
0005411	197	.60	6.091	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	197	.60	9.136	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	197	.60	12.204	0.000	.76	.75	.005	5	.00	.97	76	.105
0005411	197	.60	14.291	0.000	.76	.75	.005	5	.00	.97	76	.105

APPENDIX B

(A) Supersonic Tabulated Data

VFK/A RUN SCHEDULE

Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞
2	N22 M5	1.5	42	N21 M7	1.5	80	N13 M7	2.0	116	N27 M9	2.5
4	N22 M5	1.5	43	N22 M7	1.5	81	N14 M7	2.0	117	N22 M9	2.5
5	N22 M5	1.5	44	N23 M7	1.5	82	N15 M7	2.0	119	N26 M5	3.5
6	N26 M5	1.5	45	N24 M7	1.5	83	N16 M7	2.0	122	N27 M5	3.5
8	N27 M5	1.5	46	N20 M7	1.5	84	N17 M7	2.0	124	N27 M5	3.0
9	N27 M9	1.5	47	N28 M7	1.5	85	N18 M7	2.0	126	N27 M5	3.0
10	N26 M9	1.5	49	N10 M11	1.5	86	N19 M7	2.0	129	N26 M5	3.0
12	N27 M9	1.5	51	N10 M11	2.0	87	N25 M7	2.0	132	N27 M9	3.0
14	N10 M9	1.5	53	N13 M11	2.0	88	N21 M7	2.0	133	N10 M9	3.0
15	N13 M9	1.5	54	N14 M11	2.0	89	N22 M7	2.0	134	N13 M9	3.0
16	N14 M9	1.5	55	N14 M11	2.0	90	N23 M7	2.0	136	N15 M9	3.0
17	N15 M9	1.5	57	N26 M5	2.5	91	N24 M7	2.0	137	N16 M9	3.0
18	N16 M9	1.5	58	N27 M5	2.5	92	N20 M7	2.0	138	N17 M9	3.0
19	N17 M9	1.5	59	N27 M5	2.0	93	N28 M7	2.0	139	N18 M9	3.0
21	N18 M9	1.5	61	N26 M5	2.0	95	N10 M5	2.0	140	N10 M9	3.0
22	N19 M9	1.5	62	N26 M9	2.0	96	N10 M5	2.0	141	N25 M9	3.0
23	N25 M9	1.5	63	N27 M9	2.0	97	N14 M5	2.0	142	N21 M9	3.0
24	N21 M9	1.5	64	N10 M9	2.0	98	N15 M5	2.0	143	N22 M9	3.0
25	N22 M9	1.5	65	N13 M9	2.0	99	N16 M5	2.0	144	N23 M9	3.0
26	N23 M9	1.5	66	N14 M9	2.0	100	N17 M5	2.0	145	N24 M9	3.0
27	N24 M9	1.5	67	N15 M9	2.0	101	N18 M5	2.0	146	N20 M9	3.0
28	N20 M9	1.5	68	N16 M9	2.0	102	N19 M5	2.0	147	N28 M9	3.0
29	N17 M9	1.5	69	N17 M9	2.0	103	N25 M5	2.0	148	N10 M7	3.0
32	N28 M7	1.5	70	N18 M9	2.0	104	N21 M5	2.0	149	N13 M7	3.0
33	N10 M7	1.5	71	N19 M9	2.0	105	N22 M5	2.0	150	N14 M7	3.0
34	N13 M7	1.5	72	N25 M9	2.0	106	N23 M5	2.0	151	N15 M7	3.0
35	N14 M7	1.5	73	N21 M9	2.0	107	N24 M5	2.0	152	N16 M7	3.0
36	N15 M7	1.5	74	N22 M9	2.0	108	N20 M5	2.0	153	N17 M7	3.0
37	N16 M7	1.5	75	N23 M9	2.0	109	N28 M5	2.0	154	N18 M7	3.0
38	N17 M7	1.5	76	N24 M9	2.0	110	N26 M5	2.0	155	N19 M7	3.0
39	N18 M7	1.5	77	N20 M9	2.0	112	N27 M5	2.0	156	N25 M7	3.0
40	N19 M7	1.5	78	N28 M9	2.0	114	N22 M5	2.0	157	N21 M7	3.0
41	N25 M7	1.5	79	N10 M7	2.0	115	N26 M9	2.5	158	N22 M7	3.0

VKF/A RUN SCHEDULE (CONCLUDED)

Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞	Part No	Config	M _∞
159	N23 M7	3.0	222	N13 M9	4.0	257	N20 M11	1.5	297	N21 M11	2.0
160	N24 M7	3.0	223	N14 M9	4.0	258	N21 M11	1.5	298	N22 M11	2.0
161	N20 M7	3.0	224	N15 M9	4.0	259	N22 M11	1.5	299	N23 M11	2.0
162	N28 M7	3.0	225	N16 M9	4.0	260	N23 M11	1.5	304	N29 M9	2.0
163	N10 M11	3.0	226	N17 M9	4.0	264	N10 M5	1.5	305	N26 M9	2.0
164	N13 M11	3.0	227	N18 M9	4.0	268	N13 M5	1.5	306	N29 M5	2.0
165	N14 M11	3.0	228	N19 M9	4.0	269	N14 M5	1.5	307	N30 M5	2.0
166	N15 M11	3.0	229	N25 M9	4.0	270	N15 M5	1.5	308	N31 M5	2.0
167	N16 M11	3.0	230	N21 M9	4.0	271	N16 M5	1.5	309	N26 M5	2.0
168	N17 M11	3.0	231	N22 M9	4.0	272	N17 M5	1.5	312	N26 M5	3.0
169	N18 M11	3.0	232	N23 M9	4.0	273	N18 M5	1.5	313	N10 M5	3.0
170	N19 M11	3.0	233	N24 M9	4.0	274	N19 M5	1.5	314	N13 M5	3.0
171	N25 M11	3.0	234	N20 M9	4.0	275	N20 M5	1.5	315	N14 M5	3.0
172	N21 M11	3.0	235	N28 M9	4.0	276	N21 M5	1.5	316	N15 M5	3.0
173	N22 M11	3.0	236	N10 M7	4.0	277	N22 M5	1.5	317	N16 M5	3.0
174	N23 M11	3.0	237	N13 M7	4.0	278	N23 M5	1.5	318	N17 M5	3.0
175	N24 M11	3.0	238	N14 M7	4.0	279	N24 M5	1.5	319	N18 M5	3.0
176	N20 M11	3.0	239	N15 M7	4.0	280	N25 M5	1.5	320	N19 M5	3.0
177	N28 M11	3.0	240	N16 M7	4.0	281	N29 M5	1.5	321	N20 M5	3.0
178	N26 M11	3.0	241	N17 M7	4.0	282	N30 M5	1.5	322	N21 M5	3.0
179	N27 M11	3.0	242	N18 M7	4.0	283	N30 M5	1.5	323	N22 M5	3.0
180	N26 M9	3.0	243	N19 M7	4.0	284	N31 M9	1.5	324	N23 M5	3.0
181	N22 M5	3.0	244	N25 M7	4.0	285	N30 M9	1.5	325	N24 M5	3.0
182	N22 M5	3.0	245	N21 M7	4.0	286	N29 M9	1.5	326	N25 M5	3.0
183	N22 M5	3.0	246	N22 M7	4.0	288	N30 M9	1.5	327	N29 M5	3.0
184	N22 M5	3.0	247	N23 M7	4.0	289	N31 M9	2.0	328	N30 M5	3.0
187	N26 M5	4.5	249	N10 M11	1.5	290	N14 M11	2.0	329	N31 M5	3.0
211	N27 M5	4.5	251	N14 M11	1.5	291	N15 M11	2.0	330	N29 M9	3.0
213	N27 M5	4.0	252	N16 M11	1.5	292	N16 M11	2.0	331	N30 M9	3.0
216	N26 M5	4.0	253	N16 M11	1.5	293	N17 M11	2.0	332	N31 M9	3.0
219	N26 M9	4.0	254	N17 M11	1.5	294	N18 M11	2.0	333	N26 M9	3.0
220	N27 M9	4.0	255	N18 M11	1.5	295	N19 M11	2.0	334	N26 M9	4.0
221	N10 M9	4.0	256	N19 M11	1.5	296	N20 M11	2.0	335	N29 M9	4.0
									336	N30 M9	4.0
									337	N31 M9	4.0

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CONFIG	PART NO	MACH	ALPHA	RETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
N16	37	000000	15	002	8	07	0	21	2	021	5	0
N16	37	000000	15	001	3	03	007	14	0	14	9	0
N16	37	000000	15	001	2	04	005	5	0	23	6	0
N16	37	000000	15	001	1	04	004	5	0	39	7	0
N16	37	000000	15	000	1	04	007	2	0	11	4	0
N16	37	000000	15	000	0	05	004	7	0	24	3	0
N16	37	000000	15	000	0	06	007	7	0	19	2	0
N16	37	000000	15	000	0	06	007	7	0	42	4	0
N16	37	000000	15	000	0	06	007	7	0	08	2	0
N16	37	000000	15	000	0	07	002	6	0	00	1	0
N16	37	000000	15	000	0	07	001	6	0	73	2	0
N16	37	000000	15	000	0	07	001	6	0	36	3	0
N16	37	000000	15	000	0	07	001	6	0	09	4	0
N16	37	000000	15	000	0	07	001	6	0	14	5	0
N16	37	000000	15	000	0	07	001	6	0	09	6	0
N16	37	000000	15	000	0	07	001	6	0	26	7	0
N16	37	000000	15	000	0	07	001	6	0	03	8	0
N16	37	000000	15	000	0	07	001	6	0	10	9	0
N16	37	000000	15	000	0	07	001	6	0	26	0	0
N16	37	000000	15	000	0	07	001	6	0	03	1	0
N16	37	000000	15	000	0	07	001	6	0	10	2	0
N16	37	000000	15	000	0	07	001	6	0	26	3	0
N16	37	000000	15	000	0	07	001	6	0	03	4	0
N16	37	000000	15	000	0	07	001	6	0	10	5	0
N16	37	000000	15	000	0	07	001	6	0	26	6	0
N16	37	000000	15	000	0	07	001	6	0	03	7	0
N16	37	000000	15	000	0	07	001	6	0	10	8	0
N16	37	000000	15	000	0	07	001	6	0	26	9	0
N16	37	000000	15	000	0	07	001	6	0	03	0	0
N16	37	000000	15	000	0	07	001	6	0	10	1	0
N16	37	000000	15	000	0	07	001	6	0	26	2	0
N16	37	000000	15	000	0	07	001	6	0	03	3	0
N16	37	000000	15	000	0	07	001	6	0	10	4	0
N16	37	000000	15	000	0	07	001	6	0	26	5	0
N16	37	000000	15	000	0	07	001	6	0	03	6	0
N16	37	000000	15	000	0	07	001	6	0	10	7	0
N16	37	000000	15	000	0	07	001	6	0	26	8	0
N16	37	000000	15	000	0	07	001	6	0	03	9	0
N16	37	000000	15	000	0	07	001	6	0	10	0	0
N16	37	000000	15	000	0	07	001	6	0	26	1	0
N16	37	000000	15	000	0	07	001	6	0	03	2	0
N16	37	000000	15	000	0	07	001	6	0	10	3	0
N16	37	000000	15	000	0	07	001	6	0	26	4	0
N16	37	000000	15	000	0	07	001	6	0	03	5	0
N16	37	000000	15	000	0	07	001	6	0	10	6	0
N16	37	000000	15	000	0	07	001	6	0	26	7	0
N16	37	000000	15	000	0	07	001	6	0	03	8	0
N16	37	000000	15	000	0	07	001	6	0	10	9	0
N16	37	000000	15	000	0	07	001	6	0	26	0	0
N16	37	000000	15	000	0	07	001	6	0	03	1	0
N16	37	000000	15	000	0	07	001	6	0	10	2	0
N16	37	000000	15	000	0	07	001	6	0	26	3	0
N16	37	000000	15	000	0	07	001	6	0	03	4	0
N16	37	000000	15	000	0	07	001	6	0	10	5	0
N16	37	000000	15	000	0	07	001	6	0	26	6	0
N16	37	000000	15	000	0	07	001	6	0	03	7	0
N16	37	000000	15	000	0	07	001	6	0	10	8	0
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N16	37	000000	15	000	0	07	001	6	0	10	1	0
N16	37	000000	15	000	0	07	001	6	0	26	2	0
N16	37	000000	15	000	0	07	001	6	0	03	3	0
N16	37	000000	15	000	0	07	001	6	0	10	4	0
N16	37	000000	15	000	0	07	001	6	0	26	5	0
N16	37	000000	15	000	0	07	001	6	0	03	6	0
N16	37	000000	15	000	0	07	001	6	0	10	7	0
N16	37	000000	15	000	0	07	001	6	0	26	8	0
N16	37	000000	15	000	0	07	001	6	0	03	9	0
N16	37	000000	15	000	0	07	001	6	0	10	0	0
N16	37	000000	15	000	0	07	001	6	0	26	1	0
N16	37	000000	15	000	0	07	001	6	0	03	2	0
N16	37	000000	15	000	0	07	001	6	0	10	3	0
N16	37	000000	15	000	0	07	001	6	0	26	4	0
N16	37	000000	15	000	0	07	001	6	0	03	5	0
N16	37	000000	15	000	0	07	001	6	0	10	6	0
N16	37	000000	15	000	0	07	001	6	0	26	7	0
N16	37	000000	15	000	0	07	001	6	0	03	8	0
N16	37	000000	15	000	0	07	001	6	0	10	9	0
N16	37	000000	15	000	0	07	001	6	0	26	0	0
N16	37	000000	15	000	0	07	001	6	0	03	1	0
N16	37	000000	15	000	0	07	001	6	0	10	2	0
N16	37	000000	15	000	0	07	001	6	0	26	3	0
N16	37	000000	15	000	0	07	001	6	0	03	4	0
N16	37	000000	15	000	0	07	001	6	0	10	5	0
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N16	37	000000	15	000	0	07	001	6	0	03	2	0
N16	37	000000	15	000	0	07	001	6	0	10	3	0
N16	37	000000	15	000	0	07	001	6	0	26	4	0
N16	37	000000	15	000	0	07	001	6	0	03	5	0
N16	37	000000	15	000	0	07	001	6	0	10	6	0
N16	37	000000	15	000	0	07	001	6	0	26	7	0
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N16	37	000000	15	000	0	07	001	6	0	10	9	0
N16	37	000000	15	000	0	07	001	6	0	26	0	0
N16	37	000000	15	000	0	07	001	6	0	03	1	0
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N16	37	000000	15	000	0	07	001	6	0	10	5	0
N16	37	000000	15	000	0	07	001	6	0	26	6	0
N16	37	000000	15	000	0	07	001	6	0	03	7	0
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N16	37	000000	15	000	0	07	001	6	0	26	9	0
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N16	37	000000	15	000	0	07	001	6	0	03	3	0
N16	37	000000	15	000	0	07	001	6	0	10	4	0
N16	37	000000	15	000	0	07	001	6	0	26	5	0
N16	37	000000	15	000	0	07	001	6	0	03	6	0
N16	37	000000	15	000	0	07	001	6	0	10	7	0
N16	37	000000	15	000	0	07	001	6	0	26	8	0
N16	37	000000	15	000	0	07	001	6	0	03	9	0
N1												

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CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCP	CAT	CAF
N24	145	11	00	00	47	405	00	02	00	467	00	15
N24	145	01	00	00	35	201	00	02	00	150	00	22
N24	145	01	00	00	20	123	00	02	00	70	00	11
N24	145	01	00	00	13	135	00	02	00	03	00	30
N24	145	01	00	00	04	031	00	01	00	23	00	07
N24	145	01	00	00	02	015	00	00	00	17	00	00
N24	145	01	00	00	00	017	00	00	00	09	00	55
N24	145	01	00	00	00	017	00	00	00	04	00	55
N24	145	01	00	00	00	010	00	00	00	32	00	00
N24	145	01	00	00	00	026	00	00	00	20	00	00
N24	145	01	00	00	01	091	00	00	00	32	00	14
N24	145	01	00	00	12	123	00	00	00	22	00	07
N24	145	01	00	00	15	158	00	00	00	05	00	35
N24	145	01	00	00	26	160	00	00	00	67	00	00
N24	145	01	00	00	35	163	00	00	00	20	00	35
N24	145	01	00	00	50	190	00	00	00	17	00	00
N24	145	01	00	00	55	202	00	00	00	00	00	35
N24	145	01	00	00	57	205	00	00	00	00	00	00
N24	145	01	00	00	62	215	00	00	00	00	00	14
N24	145	01	00	00	65	227	00	00	00	00	00	00
N24	145	01	00	00	70	234	00	00	00	00	00	00
N24	145	01	00	00	75	240	00	00	00	00	00	00
N24	145	01	00	00	80	246	00	00	00	00	00	00
N24	145	01	00	00	85	251	00	00	00	00	00	00
N24	145	01	00	00	90	257	00	00	00	00	00	00
N24	145	01	00	00	95	263	00	00	00	00	00	00
N24	145	01	00	00	00	269	00	00	00	00	00	00
N24	145	01	00	00	05	275	00	00	00	00	00	00
N24	145	01	00	00	10	281	00	00	00	00	00	00
N24	145	01	00	00	15	287	00	00	00	00	00	00
N24	145	01	00	00	20	293	00	00	00	00	00	00
N24	145	01	00	00	25	299	00	00	00	00	00	00
N24	145	01	00	00	30	305	00	00	00	00	00	00
N24	145	01	00	00	35	311	00	00	00	00	00	00
N24	145	01	00	00	40	317	00	00	00	00	00	00
N24	145	01	00	00	45	323	00	00	00	00	00	00
N24	145	01	00	00	50	329	00	00	00	00	00	00
N24	145	01	00	00	55	335	00	00	00	00	00	00
N24	145	01	00	00	60	341	00	00	00	00	00	00
N24	145	01	00	00	65	347	00	00	00	00	00	00
N24	145	01	00	00	70	353	00	00	00	00	00	00
N24	145	01	00	00	75	359	00	00	00	00	00	00
N24	145	01	00	00	80	365	00	00	00	00	00	00
N24	145	01	00	00	85	371	00	00	00	00	00	00
N24	145	01	00	00	90	377	00	00	00	00	00	00
N24	145	01	00	00	95	383	00	00	00	00	00	00
N24	145	01	00	00	00	389	00	00	00	00	00	00
N24	145	01	00	00	05	395	00	00	00	00	00	00
N24	145	01	00	00	10	401	00	00	00	00	00	00
N24	145	01	00	00	15	407	00	00	00	00	00	00
N24	145	01	00	00	20	413	00	00	00	00	00	00
N24	145	01	00	00	25	419	00	00	00	00	00	00
N24	145	01	00	00	30	425	00	00	00	00	00	00
N24	145	01	00	00	35	431	00	00	00	00	00	00
N24	145	01	00	00	40	437	00	00	00	00	00	00
N24	145	01	00	00	45	443	00	00	00	00	00	00
N24	145	01	00	00	50	449	00	00	00	00	00	00
N24	145	01	00	00	55	455	00	00	00	00	00	00
N24	145	01	00	00	60	461	00	00	00	00	00	00
N24	145	01	00	00	65	467	00	00	00	00	00	00
N24	145	01	00	00	70	473	00	00	00	00	00	00
N24	145	01	00	00	75	479	00	00	00	00	00	00
N24	145	01	00	00	80	485	00	00	00	00	00	00
N24	145	01	00	00	85	491	00	00	00	00	00	00
N24	145	01	00	00	90	497	00	00	00	00	00	00
N24	145	01	00	00	95	503	00	00	00	00	00	00
N24	145	01	00	00	00	509	00	00	00	00	00	00
N24	145	01	00	00	05	515	00	00	00	00	00	00
N24	145	01	00	00	10	521	00	00	00	00	00	00
N24	145	01	00	00	15	527	00	00	00	00	00	00
N24	145	01	00	00	20	533	00	00	00	00	00	00
N24	145	01	00	00	25	539	00	00	00	00	00	00
N24	145	01	00	00	30	545	00	00	00	00	00	00
N24	145	01	00	00	35	551	00	00	00	00	00	00
N24	145	01	00	00	40	557	00	00	00	00	00	00
N24	145	01	00	00	45	563	00	00	00	00	00	00
N24	145	01	00	00	50	569	00	00	00	00	00	00
N24	145	01	00	00	55	575	00	00	00	00	00	00
N24	145	01	00	00	60	581	00	00	00	00	00	00
N24	145	01	00	00	65	587	00	00	00	00	00	00
N24	145	01	00	00	70	593	00	00	00	00	00	00
N24	145	01	00	00	75	599	00	00	00	00	00	00
N24	145	01	00	00	80	605	00	00	00	00	00	00
N24	145	01	00	00	85	611	00	00	00	00	00	00
N24	145	01	00	00	90	617	00	00	00	00	00	00
N24	145	01	00	00	95	623	00	00	00	00	00	00
N24	145	01	00	00	00	629	00	00	00	00	00	00
N24	145	01	00	00	05	635	00	00	00	00	00	00
N24	145	01	00	00	10	641	00	00	00	00	00	00
N24	145	01	00	00	15	647	00	00	00	00	00	00
N24	145	01	00	00	20	653	00	00	00	00	00	00
N24	145	01	00	00	25	659	00	00	00	00	00	00
N24	145	01	00	00	30	665	00	00	00	00	00	00
N24	145	01	00	00	35	671	00	00	00	00	00	00
N24	145	01	00	00	40	677	00	00	00	00	00	00
N24	145	01	00	00	45	683	00	00	00	00	00	00
N24	145	01	00	00	50	689	00	00	00	00	00	00
N24	145	01	00	00	55	695	00	00	00	00	00	00
N24	145	01	00	00	60	701	00	00	00	00	00	00
N24	145	01	00	00	65	707	00	00	00	00	00	00
N24	145	01	00	00	70	713	00	00	00	00	00	00
N24	145	01	00	00	75	719	00	00	00	00	00	00
N24	145	01	00	00	80	725	00	00	00	00	00	00
N24	145	01	00	00	85	731	00	00	00	00	00	00
N24	145	01	00	00	90	737	00	00	00	00	00	00
N24	145	01	00	00	95	743	00	00	00	00	00	00
N24	145	01	00	00	00	749	00	00	00	00	00	00
N24	145	01	00	00	05	755	00	00	00	00	00	00
N24	145	01	00	00	10	761	00	00	00	00	00	00
N24	145	01	00	00	15	767	00	00	00	00	00	00
N24	145	01	00	00	20	773	00	00	00	00	00	00
N24	145	01	00	00	25	779	00	00	00	00	00	00
N24	145	01	00	00	30	785	00	00	00	00	00	00
N24	145	01	00	00	35	791	00	00	00	00	00	00
N24	145	01	00	00	40	797	00	00	00	00	00	00
N24	145	01	00	00	45	803	00	00	00	00	00	00
N24	145	01	00	00	50	809	00	00	00	00	00	00
N24	145	01	00	00	55	815	00	00	00	00	00	00
N24	145	01	00	00	60	821	00	00	00	00	00	00
N24	145	01	00	00	65	827	00	00	00	00	00	00
N24	145	01	00	00	70	833	00	00	00	00	00	00
N24	145	01	00	00	75	839	00	00	00	00	00	00
N24	145	01	00	00	80	845	00	00	00	00	00	00
N24	145	01	00	00	85	851	00	00	00	00	0	

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CONFIG	PART NO	MACH	ALPHA	BETA	CN	CLN	CY	CLN	CLL	XCP	CAT	CAF
N25M11A17	171	01	000	006	495	1	208	009	001	443	620	585
N25M11A17	171	01	000	007	369	2	403	009	001	255	613	581
N25M11A17	171	01	000	007	221	3	269	012	000	537	606	572
N25M11A17	171	01	000	008	136	4	199	013	000	947	594	589
N25M11A17	171	01	000	009	104	5	138	017	000	308	586	581
N25M11A17	171	01	000	009	076	6	042	017	000	141	581	583
N25M11A17	171	01	000	008	026	7	282	017	001	300	584	580
N25M11A17	171	01	000	008	051	8	081	017	001	000	587	580
N25M11A17	171	01	000	007	071	9	107	016	001	384	593	581
N25M11A17	171	01	000	007	135	10	145	015	001	137	597	588
N25M11A17	171	01	000	007	205	11	208	015	001	292	603	588
N25M11A17	171	01	000	007	354	12	301	016	002	506	605	581
N25M11A17	171	01	000	006	463	13	393	016	002	135	604	588
N25M11A17	171	01	000	005	572	14	489	021	002	265	606	581
N25M11A17	171	01	000	005	681	15	589	034	002	486	621	588
N25M11A17	171	01	000	002	765	16	691	042	003	727	625	582
N25M11A17	171	01	000	003	825	17	784	043	003	849	636	589
N25M11A17	171	01	000	003	865	18	845	036	003	945	639	580
N25M11A17	171	01	000	005	912	19	896	007	004	371	646	580
N25M11A17	171	01	000	005	953	20	926	002	005	606	649	583

N21M11A17	172	01	000	007	466	1	321	009	001	395	585	611
N21M11A17	172	01	000	009	355	2	501	009	000	969	613	604
N21M11A17	172	01	000	009	243	3	243	010	000	415	604	601
N21M11A17	172	01	000	010	162	4	122	011	000	194	624	593
N21M11A17	172	01	000	010	099	5	099	011	000	497	614	585
N21M11A17	172	01	000	010	021	6	022	011	000	767	611	582
N21M11A17	172	01	000	009	051	7	052	010	001	000	613	579
N21M11A17	172	01	000	008	076	8	085	010	001	377	616	581
N21M11A17	172	01	000	008	136	9	139	010	001	410	623	584
N21M11A17	172	01	000	008	204	10	202	010	001	592	625	587
N21M11A17	172	01	000	008	269	11	263	010	001	771	625	584
N21M11A17	172	01	000	007	347	12	349	010	001	471	638	593
N21M11A17	172	01	000	005	415	13	411	015	001	715	646	602
N21M11A17	172	01	000	005	477	14	480	030	002	971	654	610
N21M11A17	172	01	000	002	542	15	544	024	003	150	667	611
N21M11A17	172	01	000	002	595	16	599	015	003	309	671	612
N21M11A17	172	01	000	003	617	17	620	000	003	464	671	615
N21M11A17	172	01	000	003	640	18	646	000	004	603	671	618
N21M11A17	172	01	000	006	691	19	699	000	004	739	680	619
N21M11A17	172	01	000	006	712	20	721	000	004	893	680	619

CONFIG	PART NO	MCH	ALPHA	BETA	CN	CLM	CY	CLN	CLL	XCF	CAT	CAF
N22222	173333	1	5	010	242	591	000	34	002	1	192	15301
N22222	173333	1	5	009	242	599	000	34	001	1	193	15301
N22222	173333	1	5	009	242	611	000	34	001	1	194	15301
N22222	173333	1	5	009	242	638	000	34	001	1	195	15301
N22222	173333	1	5	009	242	654	000	34	000	1	196	15301
N22222	173333	1	5	009	242	671	000	34	000	1	197	15301
N22222	173333	1	5	009	242	687	000	34	000	1	198	15301
N22222	173333	1	5	008	242	703	000	34	000	1	199	15301
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N22222	173333	1	5	008	242	736	000	34	001	1	201	15301
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| CONFIG | PART NO | MACH | ALPHA | BETA | CN | CLM | CY | CLN | CLL | XCP | CAT | CAP |
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| N17    | 22      | 4    | 0     | 008  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 009  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 010  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 011  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 012  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 013  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 014  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 015  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 016  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 017  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 018  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 019  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 020  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 021  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
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| N17    | 22      | 4    | 0     | 023  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 024  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
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| N17    | 22      | 4    | 0     | 042  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
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| N17    | 22      | 4    | 0     | 044  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N17    | 22      | 4    | 0     | 045  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 6     | 000  | 7  | 5   | 0  | 0   | 0   | 7   | 5   | 0   |
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| N15    | 22      | 4    | 3     | 002  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 3     | 003  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 2     | 004  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 2     | 005  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 1     | 006  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 1     | 007  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 008  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 009  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 010  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 011  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 012  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 013  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 014  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 015  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 016  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 017  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 018  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 019  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 020  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 021  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 022  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 023  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 024  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 025  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 026  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 027  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 028  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 029  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 030  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 031  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 032  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 033  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 034  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 035  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 036  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 037  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 038  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 039  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 040  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 041  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 042  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 043  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 044  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |
| N15    | 22      | 4    | 0     | 045  | 0  | 2   | 0  | 0   | 0   | 4   | 5   | 0   |



































[illegible]



| CONFIG | PART NO | MACH | ALPHA  | RETA | CN     | CLM   | CY   | CLN  | CLL  | XCP    | CAT  | CAF  |
|--------|---------|------|--------|------|--------|-------|------|------|------|--------|------|------|
| M5A17  | 264     | 11   | 5.000  | .092 | 3.099  | .171  | .015 | .033 | .001 | .653   | .877 | .756 |
| M5A17  | 264     | 11   | 5.000  | .090 | 3.205  | .171  | .015 | .033 | .001 | .816   | .864 | .760 |
| M5A17  | 264     | 11   | 3.500  | .090 | 3.155  | .143  | .012 | .036 | .001 | .976   | .851 | .759 |
| M5A17  | 264     | 11   | 3.500  | .090 | 3.155  | .119  | .012 | .036 | .001 | .086   | .843 | .738 |
| M5A17  | 264     | 11   | 2.500  | .090 | 3.023  | .101  | .010 | .032 | .001 | 1.086  | .836 | .723 |
| M5A17  | 264     | 11   | 2.500  | .090 | 3.023  | .094  | .008 | .020 | .001 | 1.395  | .843 | .713 |
| M5A17  | 264     | 11   | 1.500  | .090 | 3.053  | .087  | .007 | .022 | .002 | 1.580  | .834 | .703 |
| M5A17  | 264     | 11   | 1.500  | .090 | 3.053  | .080  | .007 | .022 | .002 | 1.947  | .834 | .693 |
| M5A17  | 264     | 11   | 0.500  | .089 | 3.000  | 0.010 | .007 | .027 | .002 | 0.000  | .840 | .737 |
| M5A17  | 264     | 11   | 0.500  | .088 | 3.035  | .026  | .007 | .029 | .002 | 1.486  | .837 | .727 |
| M5A17  | 264     | 11   | 1.500  | .088 | 3.073  | .073  | .006 | .030 | .002 | 1.505  | .834 | .717 |
| M5A17  | 264     | 11   | 1.500  | .087 | 3.073  | .063  | .006 | .030 | .002 | 1.353  | .834 | .707 |
| M5A17  | 264     | 11   | 3.500  | .087 | 3.065  | .093  | .005 | .031 | .002 | 1.326  | .846 | .735 |
| M5A17  | 264     | 11   | 3.500  | .085 | 3.130  | .095  | .005 | .033 | .002 | 1.616  | .840 | .725 |
| M5A17  | 264     | 11   | 3.500  | .084 | 3.161  | .095  | .005 | .036 | .002 | 1.811  | .840 | .714 |
| M5A17  | 264     | 11   | 5.000  | .082 | 3.269  | .075  | .006 | .054 | .002 | 1.927  | .844 | .700 |
| M5A17  | 264     | 11   | 5.000  | .079 | 3.369  | .074  | .006 | .054 | .002 | 1.554  | .844 | .688 |
| M5A17  | 264     | 11   | 7.000  | .073 | 3.500  | .033  | .006 | .100 | .003 | 1.297  | .841 | .748 |
| M5A17  | 264     | 11   | 8.000  | .071 | 4.200  | .140  | .015 | .142 | .002 | 1.332  | .845 | .748 |
| M5A17  | 264     | 11   | 9.000  | .068 | 5.671  | .372  | .034 | .179 | .001 | 1.855  | .893 | .733 |
| M5A17  | 264     | 11   | 10.000 | .064 | 9.171  | .513  | .062 | .225 | .001 | 3.025  | .899 | .723 |
| M5A17  | 264     | 11   | 13.000 | .069 | 11.476 | .714  | .103 | .305 | .000 | 4.541  | .894 | .703 |
| M5A17  | 264     | 11   | 14.000 | .074 | 11.247 | .823  | .107 | .441 | .000 | 5.361  | .912 | .700 |
| M5A17  | 264     | 11   | 15.000 | .074 | 11.247 | .823  | .107 | .441 | .000 | 5.361  | .912 | .700 |
| M5A17  | 268     | 11   | 5.000  | .091 | 2.716  | .106  | .014 | .049 | .000 | .345   | .671 | .579 |
| M5A17  | 268     | 11   | 5.000  | .091 | 2.716  | .115  | .014 | .049 | .000 | .547   | .671 | .555 |
| M5A17  | 268     | 11   | 3.500  | .090 | 2.744  | .111  | .012 | .037 | .000 | .678   | .660 | .555 |
| M5A17  | 268     | 11   | 3.500  | .090 | 2.744  | .100  | .010 | .029 | .000 | .843   | .660 | .540 |
| M5A17  | 268     | 11   | 2.500  | .090 | 2.717  | .095  | .009 | .025 | .000 | .979   | .655 | .555 |
| M5A17  | 268     | 11   | 2.500  | .090 | 2.717  | .081  | .008 | .025 | .000 | 1.050  | .655 | .540 |
| M5A17  | 268     | 11   | 1.500  | .089 | 2.655  | .075  | .007 | .025 | .000 | 1.345  | .649 | .555 |
| M5A17  | 268     | 11   | 1.500  | .089 | 2.655  | .060  | .007 | .025 | .000 | 1.600  | .651 | .555 |
| M5A17  | 268     | 11   | 0.500  | .089 | 2.655  | .030  | .005 | .022 | .001 | 1.849  | .657 | .555 |
| M5A17  | 268     | 11   | 0.500  | .088 | 2.667  | .026  | .005 | .023 | .001 | 2.040  | .657 | .555 |
| M5A17  | 268     | 11   | 1.500  | .088 | 2.667  | .060  | .005 | .028 | .001 | 2.489  | .657 | .555 |
| M5A17  | 268     | 11   | 1.500  | .085 | 2.667  | .067  | .005 | .028 | .001 | 2.885  | .661 | .555 |
| M5A17  | 268     | 11   | 3.500  | .083 | 2.667  | .095  | .005 | .035 | .001 | 3.205  | .671 | .555 |
| M5A17  | 268     | 11   | 3.500  | .080 | 2.667  | .135  | .006 | .060 | .001 | 3.749  | .674 | .555 |
| M5A17  | 268     | 11   | 5.000  | .074 | 2.667  | .207  | .014 | .100 | .001 | 4.300  | .683 | .555 |
| M5A17  | 268     | 11   | 5.000  | .070 | 2.667  | .255  | .014 | .100 | .001 | 4.998  | .670 | .555 |
| M5A17  | 268     | 11   | 6.000  | .067 | 2.667  | .345  | .023 | .134 | .001 | 5.520  | .670 | .555 |
| M5A17  | 268     | 11   | 7.000  | .066 | 2.667  | .444  | .037 | .185 | .001 | 6.298  | .674 | .555 |
| M5A17  | 268     | 11   | 8.000  | .064 | 2.667  | .579  | .062 | .254 | .001 | 7.243  | .674 | .555 |
| M5A17  | 268     | 11   | 9.000  | .064 | 2.667  | .714  | .103 | .305 | .001 | 8.495  | .674 | .555 |
| M5A17  | 268     | 11   | 10.000 | .065 | 2.667  | .823  | .107 | .441 | .002 | 9.943  | .674 | .555 |
| M5A17  | 268     | 11   | 13.000 | .064 | 2.667  | .971  | .162 | .615 | .001 | 11.323 | .674 | .555 |
| M5A17  | 268     | 11   | 14.000 | .064 | 2.667  | 1.025 | .162 | .615 | .001 | 12.745 | .674 | .555 |
| M5A17  | 268     | 11   | 15.000 | .064 | 2.667  | 1.025 | .162 | .615 | .001 | 14.209 | .674 | .555 |







[illegible]

| Case No. | Age | Sex | Marital Status | Occupation        | Income   | Assets    | Liabilities | Net Worth | Spouse's Assets | Spouse's Liabilities | Spouse's Net Worth |
|----------|-----|-----|----------------|-------------------|----------|-----------|-------------|-----------|-----------------|----------------------|--------------------|
| 1        | 35  | M   | Married        | Teacher           | \$45,000 | \$120,000 | \$80,000    | \$40,000  | \$150,000       | \$90,000             | \$60,000           |
| 2        | 42  | F   | Single         | Nurse             | \$55,000 | \$180,000 | \$100,000   | \$80,000  | \$200,000       | \$120,000            | \$80,000           |
| 3        | 28  | M   | Married        | Engineer          | \$60,000 | \$250,000 | \$150,000   | \$100,000 | \$300,000       | \$180,000            | \$120,000          |
| 4        | 55  | F   | Widowed        | Retired           | \$35,000 | \$90,000  | \$50,000    | \$40,000  | \$100,000       | \$60,000             | \$40,000           |
| 5        | 38  | M   | Married        | Doctor            | \$75,000 | \$350,000 | \$200,000   | \$150,000 | \$400,000       | \$250,000            | \$150,000          |
| 6        | 48  | F   | Married        | Lawyer            | \$85,000 | \$450,000 | \$250,000   | \$200,000 | \$500,000       | \$300,000            | \$200,000          |
| 7        | 25  | M   | Single         | Student           | \$15,000 | \$50,000  | \$30,000    | \$20,000  | \$100,000       | \$60,000             | \$40,000           |
| 8        | 60  | F   | Widowed        | Retired           | \$25,000 | \$70,000  | \$40,000    | \$30,000  | \$120,000       | \$70,000             | \$50,000           |
| 9        | 32  | M   | Married        | Software Engineer | \$65,000 | \$280,000 | \$160,000   | \$120,000 | \$320,000       | \$190,000            | \$130,000          |
| 10       | 50  | F   | Married        | Accountant        | \$40,000 | \$110,000 | \$60,000    | \$50,000  | \$130,000       | \$80,000             | \$50,000           |



| CONFIG    | PART NO | MACH | ALPHA  | BETA | CN   | CLM  | CV   | CLN  | CLL  | XCP   | CAT | CAF |
|-----------|---------|------|--------|------|------|------|------|------|------|-------|-----|-----|
| N18 M5A17 | 273     | 1.51 | 6.000  | 0.92 | 281  | 375  | 0.15 | 0.33 | 0.00 | 1.337 | 294 | 175 |
| N18 M5A17 | 273     | 1.51 | 5.000  | 0.92 | 227  | 353  | 0.01 | 0.36 | 0.01 | 1.506 | 279 | 173 |
| N18 M5A17 | 273     | 1.51 | 4.000  | 0.91 | 149  | 244  | 0.01 | 0.47 | 0.01 | 1.657 | 275 | 173 |
| N18 M5A17 | 273     | 1.51 | 3.000  | 0.91 | 130  | 184  | 0.01 | 0.47 | 0.01 | 1.657 | 269 | 168 |
| N18 M5A17 | 273     | 1.51 | 2.000  | 0.92 | 106  | 132  | 0.00 | 0.26 | 0.01 | 1.214 | 264 | 150 |
| N18 M5A17 | 273     | 1.51 | 1.000  | 0.91 | 065  | 076  | 0.00 | 0.16 | 0.00 | 1.150 | 253 | 150 |
| N18 M5A17 | 273     | 1.51 | 0.500  | 0.91 | 043  | 051  | 0.00 | 0.13 | 0.00 | 1.191 | 249 | 152 |
| N18 M5A17 | 273     | 1.51 | 0.000  | 0.90 | 021  | 022  | 0.00 | 0.10 | 0.00 | 1.200 | 249 | 150 |
| N18 M5A17 | 273     | 1.51 | 0.500  | 0.89 | 023  | 051  | 0.00 | 0.09 | 0.00 | 1.175 | 249 | 151 |
| N18 M5A17 | 273     | 1.51 | 1.000  | 0.88 | 067  | 051  | 0.00 | 0.12 | 0.00 | 1.331 | 254 | 150 |
| N18 M5A17 | 273     | 1.51 | 2.000  | 0.86 | 087  | 120  | 0.00 | 0.26 | 0.01 | 1.461 | 256 | 157 |
| N18 M5A17 | 273     | 1.51 | 3.000  | 0.83 | 127  | 209  | 0.00 | 0.55 | 0.01 | 1.647 | 266 | 159 |
| N18 M5A17 | 273     | 1.51 | 4.000  | 0.83 | 170  | 241  | 0.00 | 0.80 | 0.01 | 1.627 | 270 | 159 |
| N18 M5A17 | 273     | 1.51 | 5.000  | 0.82 | 204  | 260  | 0.00 | 0.95 | 0.01 | 1.573 | 270 | 159 |
| N18 M5A17 | 273     | 1.51 | 6.000  | 0.80 | 237  | 293  | 0.00 | 0.89 | 0.02 | 1.315 | 286 | 163 |
| N18 M5A17 | 273     | 1.51 | 7.000  | 0.74 | 357  | 337  | 0.00 | 0.80 | 0.02 | 1.046 | 304 | 163 |
| N18 M5A17 | 273     | 1.51 | 8.000  | 0.70 | 447  | 357  | 0.00 | 1.29 | 0.02 | 0.889 | 318 | 162 |
| N18 M5A17 | 273     | 1.51 | 9.000  | 0.68 | 557  | 419  | 0.00 | 1.49 | 0.01 | 0.809 | 329 | 170 |
| N18 M5A17 | 273     | 1.51 | 10.000 | 0.60 | 691  | 503  | 0.00 | 1.59 | 0.01 | 0.595 | 340 | 162 |
| N18 M5A17 | 273     | 1.51 | 11.000 | 0.70 | 845  | 759  | 0.00 | 1.49 | 0.00 | 0.355 | 347 | 168 |
| N18 M5A17 | 273     | 1.51 | 12.000 | 0.72 | 1137 | 981  | 0.00 | 1.21 | 0.01 | 0.134 | 355 | 163 |
| N18 M5A17 | 273     | 1.51 | 13.000 | 0.72 | 1357 | 1254 | 0.00 | 0.57 | 0.01 | 0.000 | 355 | 161 |
| N19 M5A17 | 274     | 1.51 | 6.000  | 0.92 | 760  | 360  | 0.00 | 0.38 | 0.00 | 3.125 | 302 | 186 |
| N19 M5A17 | 274     | 1.51 | 5.000  | 0.91 | 227  | 276  | 0.00 | 0.40 | 0.01 | 3.623 | 293 | 180 |
| N19 M5A17 | 274     | 1.51 | 4.000  | 0.90 | 147  | 240  | 0.00 | 0.59 | 0.01 | 3.490 | 288 | 175 |
| N19 M5A17 | 274     | 1.51 | 3.000  | 0.89 | 107  | 196  | 0.00 | 0.45 | 0.01 | 3.506 | 277 | 161 |
| N19 M5A17 | 274     | 1.51 | 2.000  | 0.89 | 065  | 170  | 0.00 | 0.25 | 0.01 | 3.156 | 265 | 162 |
| N19 M5A17 | 274     | 1.51 | 1.000  | 0.91 | 020  | 048  | 0.00 | 0.13 | 0.00 | 3.126 | 261 | 160 |
| N19 M5A17 | 274     | 1.51 | 0.500  | 0.91 | 021  | 020  | 0.00 | 0.15 | 0.00 | 3.000 | 262 | 166 |
| N19 M5A17 | 274     | 1.51 | 0.000  | 0.90 | 023  | 057  | 0.00 | 0.15 | 0.00 | 3.340 | 264 | 177 |
| N19 M5A17 | 274     | 1.51 | 0.500  | 0.89 | 063  | 066  | 0.00 | 0.20 | 0.00 | 3.363 | 264 | 168 |
| N19 M5A17 | 274     | 1.51 | 1.000  | 0.87 | 104  | 116  | 0.00 | 0.39 | 0.00 | 3.307 | 267 | 169 |
| N19 M5A17 | 274     | 1.51 | 2.000  | 0.85 | 143  | 208  | 0.00 | 0.55 | 0.01 | 3.609 | 270 | 164 |
| N19 M5A17 | 274     | 1.51 | 3.000  | 0.85 | 196  | 235  | 0.00 | 0.47 | 0.01 | 3.652 | 270 | 173 |
| N19 M5A17 | 274     | 1.51 | 4.000  | 0.82 | 261  | 278  | 0.00 | 0.56 | 0.01 | 3.556 | 286 | 177 |
| N19 M5A17 | 274     | 1.51 | 5.000  | 0.80 | 314  | 261  | 0.00 | 0.87 | 0.01 | 3.230 | 299 | 173 |
| N19 M5A17 | 274     | 1.51 | 6.000  | 0.77 | 345  | 210  | 0.00 | 0.87 | 0.02 | 3.000 | 300 | 160 |
| N19 M5A17 | 274     | 1.51 | 7.000  | 0.73 | 399  | 210  | 0.00 | 1.13 | 0.02 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 8.000  | 0.72 | 459  | 289  | 0.00 | 1.35 | 0.02 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 9.000  | 0.72 | 539  | 329  | 0.00 | 1.58 | 0.02 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 10.000 | 0.72 | 600  | 399  | 0.00 | 1.51 | 0.01 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 11.000 | 0.75 | 660  | 461  | 0.00 | 1.60 | 0.01 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 12.000 | 0.75 | 714  | 529  | 0.00 | 1.20 | 0.01 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 13.000 | 0.75 | 742  | 591  | 0.00 | 0.96 | 0.01 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 14.000 | 0.75 | 775  | 621  | 0.00 | 0.57 | 0.01 | 2.899 | 300 | 174 |
| N19 M5A17 | 274     | 1.51 | 15.000 | 0.75 | 808  | 621  | 0.00 | 0.20 | 0.01 | 2.899 | 300 | 174 |



| CONFIG | PART NO | MACH | ALPHA | BETA | CN    | CLM  | CY  | CLN | CLL | XCP | CAT | CAF |
|--------|---------|------|-------|------|-------|------|-----|-----|-----|-----|-----|-----|
| N20    | 275     | 1    | 0     | 094  | 279   | 374  | 014 | 035 | 0   | 22  | 0   | 0   |
| N20    | 275     | 1    | 0     | 093  | 221   | 338  | 011 | 035 | 0   | 34  | 3   | 0   |
| N20    | 275     | 1    | 0     | 092  | 146   | 246  | 011 | 035 | 0   | 59  | 7   | 0   |
| N20    | 275     | 1    | 0     | 091  | 107   | 201  | 012 | 035 | 0   | 59  | 7   | 0   |
| N20    | 275     | 1    | 0     | 091  | 065   | 136  | 007 | 035 | 0   | 19  | 1   | 0   |
| N20    | 275     | 1    | 0     | 091  | 023   | 076  | 005 | 035 | 0   | 16  | 0   | 0   |
| N20    | 275     | 1    | 0     | 090  | 010   | 028  | 005 | 035 | 0   | 36  | 0   | 0   |
| N20    | 275     | 1    | 0     | 090  | 003   | 000  | 004 | 035 | 0   | 00  | 0   | 0   |
| N20    | 275     | 1    | 0     | 089  | 045   | 027  | 004 | 035 | 0   | 18  | 0   | 0   |
| N20    | 275     | 1    | 0     | 089  | 065   | 079  | 002 | 035 | 0   | 20  | 0   | 0   |
| N20    | 275     | 1    | 0     | 085  | 105   | 154  | 004 | 035 | 0   | 19  | 0   | 0   |
| N20    | 275     | 1    | 0     | 082  | 124   | 207  | 007 | 035 | 0   | 46  | 0   | 0   |
| N20    | 275     | 1    | 0     | 081  | 169   | 251  | 004 | 035 | 0   | 57  | 0   | 0   |
| N20    | 275     | 1    | 0     | 075  | 202   | 277  | 007 | 035 | 0   | 15  | 0   | 0   |
| N20    | 275     | 1    | 0     | 072  | 351   | 261  | 011 | 035 | 0   | 25  | 0   | 0   |
| N20    | 275     | 1    | 0     | 069  | 553   | 294  | 014 | 035 | 0   | 16  | 0   | 0   |
| N20    | 275     | 1    | 0     | 066  | 593   | 076  | 015 | 035 | 0   | 23  | 0   | 0   |
| N20    | 275     | 1    | 0     | 063  | 641   | 335  | 015 | 035 | 0   | 63  | 0   | 0   |
| N20    | 275     | 1    | 0     | 063  | 683   | 786  | 014 | 035 | 0   | 75  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 1033  | 1015 | 021 | 035 | 0   | 83  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 1339  | 1245 | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 1639  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 1939  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 2239  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 2539  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 2839  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 3139  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 3439  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 3739  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 4039  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 4339  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 4639  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 4939  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 5239  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 5539  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 5839  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 6139  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 6439  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 6739  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 7039  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 7339  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 7639  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 7939  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 8239  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 8539  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 8839  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 9139  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 9439  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 9739  | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 10039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 10339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 10639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 10939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 11239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 11539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 11839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 12139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 12439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 12739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 13039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 13339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 13639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 13939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 14239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 14539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 14839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 15139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 15439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 15739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 16039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 16339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 16639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 16939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 17239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 17539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 17839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 18139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 18439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 18739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 19039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 19339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 19639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 19939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 20239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 20539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 20839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 21139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 21439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 21739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 22039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 22339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 22639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 22939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 23239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 23539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 23839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 24139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 24439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 24739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 25039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 25339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 25639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 25939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 26239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 26539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 26839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 27139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 27439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 27739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 28039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 28339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 28639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 28939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 29239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 29539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 29839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 30139 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 30439 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 30739 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 31039 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 31339 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 31639 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 31939 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 32239 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 32539 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 275     | 1    | 0     | 067  | 32839 | 145  | 034 | 035 | 0   | 92  | 0   | 0   |
| N20    | 27      |      |       |      |       |      |     |     |     |     |     |     |



| CONFIG | PART NO | MACH | ALPHA  | BETA | CN    | CLM  | CY   | CLN  | CLL  | XCP  | CAT  | CAF  |
|--------|---------|------|--------|------|-------|------|------|------|------|------|------|------|
| N22    | 277     | 1.51 | -6.000 | .092 | 7.662 | .509 | .016 | .037 | .001 | .045 | .259 | .599 |
| N22    | 277     | 1.51 | -5.000 | .091 | 7.662 | .509 | .015 | .037 | .001 | .169 | .234 | .132 |
| N22    | 277     | 1.51 | -3.500 | .089 | 7.662 | .509 | .013 | .039 | .002 | .378 | .222 | .112 |
| N22    | 277     | 1.51 | -2.500 | .089 | 7.662 | .509 | .013 | .043 | .002 | .402 | .216 | .114 |
| N22    | 277     | 1.51 | -1.500 | .090 | 7.662 | .509 | .009 | .027 | .001 | .749 | .208 | .110 |
| N22    | 277     | 1.51 | -1.000 | .090 | 7.662 | .509 | .007 | .015 | .001 | .914 | .207 | .114 |
| N22    | 277     | 1.51 | -0.500 | .089 | 7.662 | .509 | .005 | .017 | .001 | .972 | .207 | .110 |
| N22    | 277     | 1.51 | 0.000  | .089 | 7.662 | .509 | .005 | .016 | .001 | .000 | .205 | .114 |
| N22    | 277     | 1.51 | 1.000  | .089 | 7.662 | .509 | .004 | .017 | .001 | .000 | .206 | .113 |
| N22    | 277     | 1.51 | 1.500  | .086 | 7.662 | .509 | .003 | .023 | .001 | .553 | .206 | .110 |
| N22    | 277     | 1.51 | 2.000  | .085 | 7.662 | .509 | .004 | .034 | .001 | .713 | .210 | .110 |
| N22    | 277     | 1.51 | 2.500  | .085 | 7.662 | .509 | .006 | .050 | .001 | .908 | .217 | .110 |
| N22    | 277     | 1.51 | 3.000  | .085 | 7.662 | .509 | .004 | .041 | .002 | .075 | .223 | .111 |
| N22    | 277     | 1.51 | 4.000  | .083 | 7.662 | .509 | .006 | .044 | .002 | .295 | .226 | .111 |
| N22    | 277     | 1.51 | 5.000  | .087 | 7.662 | .509 | .012 | .059 | .002 | .932 | .235 | .111 |
| N22    | 277     | 1.51 | 6.000  | .075 | 7.662 | .509 | .017 | .105 | .003 | .577 | .251 | .111 |
| N22    | 277     | 1.51 | 7.000  | .074 | 7.662 | .509 | .019 | .129 | .003 | .350 | .278 | .111 |
| N22    | 277     | 1.51 | 10.000 | .075 | 7.662 | .509 | .019 | .149 | .002 | .036 | .285 | .112 |
| N22    | 278     | 1.51 | -6.000 | .093 | 7.553 | .442 | .015 | .035 | .001 | .747 | .254 | .157 |
| N22    | 278     | 1.51 | -5.000 | .092 | 7.553 | .442 | .014 | .033 | .002 | .855 | .254 | .154 |
| N22    | 278     | 1.51 | -3.500 | .090 | 7.553 | .442 | .012 | .040 | .001 | .925 | .238 | .155 |
| N22    | 278     | 1.51 | -2.500 | .091 | 7.553 | .442 | .007 | .026 | .001 | .527 | .236 | .132 |
| N22    | 278     | 1.51 | -1.500 | .091 | 7.553 | .442 | .006 | .014 | .001 | .557 | .236 | .132 |
| N22    | 278     | 1.51 | -1.000 | .090 | 7.553 | .442 | .004 | .010 | .001 | .550 | .236 | .132 |
| N22    | 278     | 1.51 | -0.500 | .090 | 7.553 | .442 | .004 | .007 | .001 | .000 | .236 | .132 |
| N22    | 278     | 1.51 | 0.000  | .090 | 7.553 | .442 | .002 | .005 | .001 | .000 | .236 | .132 |
| N22    | 278     | 1.51 | 1.000  | .087 | 7.553 | .442 | .002 | .005 | .001 | .000 | .236 | .132 |
| N22    | 278     | 1.51 | 1.500  | .087 | 7.553 | .442 | .002 | .005 | .001 | .000 | .236 | .132 |
| N22    | 278     | 1.51 | 2.000  | .085 | 7.553 | .442 | .005 | .029 | .001 | .609 | .236 | .132 |
| N22    | 278     | 1.51 | 2.500  | .085 | 7.553 | .442 | .004 | .011 | .001 | .954 | .236 | .132 |
| N22    | 278     | 1.51 | 3.000  | .082 | 7.553 | .442 | .004 | .039 | .001 | .209 | .247 | .149 |
| N22    | 278     | 1.51 | 4.000  | .075 | 7.553 | .442 | .005 | .054 | .002 | .929 | .257 | .151 |
| N22    | 278     | 1.51 | 5.000  | .072 | 7.553 | .442 | .015 | .105 | .002 | .357 | .273 | .154 |
| N22    | 278     | 1.51 | 6.000  | .072 | 7.553 | .442 | .015 | .125 | .002 | .035 | .285 | .154 |
| N22    | 278     | 1.51 | 7.000  | .073 | 7.553 | .442 | .019 | .149 | .001 | .036 | .285 | .154 |
| N22    | 278     | 1.51 | 10.000 | .073 | 7.553 | .442 | .019 | .169 | .001 | .036 | .285 | .154 |



[illegible]







[illegible]







| CONFIG | PART NO | MACH | ALPHA  | BETA | CN    | CLM  | CY   | CLN  | CLL  | XCP   | CAT | CAT  |
|--------|---------|------|--------|------|-------|------|------|------|------|-------|-----|------|
| N30    | 2000    | 00   | -5.000 | .066 | 0     | 413  | .014 | .007 | .001 | 1.006 | 346 | 2216 |
| N30    | 2000    | 00   | -4.500 | .068 | 308   | 139  | .011 | .022 | .001 | 1.450 | 346 | 2216 |
| N30    | 2000    | 00   | -3.500 | .069 | 165   | .036 | .010 | .036 | .001 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | -3.500 | .069 | 165   | .036 | .010 | .036 | .001 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | -2.500 | .069 | 165   | .036 | .011 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | -1.500 | .069 | 165   | .036 | .011 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 0.500  | .066 | 0     | .030 | .013 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 1.500  | .066 | 030   | .024 | .015 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 1.500  | .066 | 030   | .024 | .015 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 1.500  | .064 | 065   | .035 | .016 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 2.500  | .064 | 141   | .031 | .016 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 3.500  | .064 | 202   | .012 | .016 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 4.500  | .064 | 227   | .010 | .016 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 5.500  | .063 | 327   | .015 | .016 | .036 | .000 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 7.500  | .065 | 470   | .020 | .027 | .036 | .001 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 9.500  | .063 | 710   | .023 | .027 | .036 | .001 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 10.000 | .063 | 864   | .017 | .031 | .036 | .002 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 11.500 | .066 | 1025  | .019 | .031 | .036 | .003 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 12.500 | .066 | 1165  | .023 | .031 | .036 | .005 | .002  | 346 | 2216 |
| N30    | 2000    | 00   | 13.500 | .063 | 1405  | .017 | .031 | .036 | .007 | .002  | 346 | 2216 |
| N31    | 2000    | 00   | -5.500 | .066 | 0     | 370  | .014 | .015 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | -4.500 | .067 | 107   | .025 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | -3.500 | .069 | 152   | .035 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | -2.500 | .069 | 152   | .035 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | -1.500 | .069 | 152   | .035 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 0.500  | .069 | 152   | .035 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 1.500  | .067 | 025   | .009 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 1.500  | .067 | 025   | .009 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 2.500  | .067 | 065   | .009 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 3.500  | .067 | 136   | .040 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 4.500  | .067 | 207   | .031 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 5.500  | .068 | 323   | .009 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 7.500  | .068 | 423   | .022 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 9.500  | .068 | 567   | .031 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 10.000 | .068 | 735   | .022 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 11.500 | .066 | 865   | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 12.500 | .066 | 1025  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 13.500 | .066 | 1165  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 14.500 | .066 | 1305  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 15.500 | .066 | 1445  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 16.500 | .066 | 1585  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 17.500 | .066 | 1725  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 18.500 | .066 | 1865  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 19.500 | .066 | 2005  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 20.500 | .066 | 2145  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 21.500 | .066 | 2285  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 22.500 | .066 | 2425  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 23.500 | .066 | 2565  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 24.500 | .066 | 2705  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 25.500 | .066 | 2845  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 26.500 | .066 | 2985  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 27.500 | .066 | 3125  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 28.500 | .066 | 3265  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 29.500 | .066 | 3405  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 30.500 | .066 | 3545  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 31.500 | .066 | 3685  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 32.500 | .066 | 3825  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 33.500 | .066 | 3965  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 34.500 | .066 | 4105  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 35.500 | .066 | 4245  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 36.500 | .066 | 4385  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 37.500 | .066 | 4525  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 38.500 | .066 | 4665  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 39.500 | .066 | 4805  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 40.500 | .066 | 4945  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 41.500 | .066 | 5085  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 42.500 | .066 | 5225  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 43.500 | .066 | 5365  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 44.500 | .066 | 5505  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 45.500 | .066 | 5645  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 46.500 | .066 | 5785  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 47.500 | .066 | 5925  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 48.500 | .066 | 6065  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 49.500 | .066 | 6205  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 50.500 | .066 | 6345  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 51.500 | .066 | 6485  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 52.500 | .066 | 6625  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 53.500 | .066 | 6765  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 54.500 | .066 | 6905  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 55.500 | .066 | 7045  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 56.500 | .066 | 7185  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 57.500 | .066 | 7325  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 58.500 | .066 | 7465  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 59.500 | .066 | 7605  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 60.500 | .066 | 7745  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 61.500 | .066 | 7885  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 62.500 | .066 | 8025  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 63.500 | .066 | 8165  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 64.500 | .066 | 8305  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 65.500 | .066 | 8445  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 66.500 | .066 | 8585  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 67.500 | .066 | 8725  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 68.500 | .066 | 8865  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 69.500 | .066 | 9005  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 70.500 | .066 | 9145  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 71.500 | .066 | 9285  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 72.500 | .066 | 9425  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 73.500 | .066 | 9565  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 74.500 | .066 | 9705  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 75.500 | .066 | 9845  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 76.500 | .066 | 9985  | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 77.500 | .066 | 10125 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 78.500 | .066 | 10265 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 79.500 | .066 | 10405 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 80.500 | .066 | 10545 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 81.500 | .066 | 10685 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 82.500 | .066 | 10825 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 83.500 | .066 | 10965 | .033 | .014 | .022 | .001 | 1.006 | 346 | 2216 |
| N31    | 2000    | 00   | 84.500 | .066 | 11105 | .033 | .014 | .022 | .0   |       |     |      |







[illegible]

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| CONFIG | PART NO | MACH | ALPHA | PETA | CN   | CLM | CY  | CLN | CLL | XCP | CAT | CAL |
|--------|---------|------|-------|------|------|-----|-----|-----|-----|-----|-----|-----|
| N202   | 296     | 2    | 3     | 019  | 0    | 006 | 007 | 036 | 000 | 129 | 527 | 296 |
| N202   | 296     | 2    | 2     | 019  | 1642 | 006 | 007 | 044 | 000 | 169 | 421 | 296 |
| N202   | 296     | 2    | 2     | 019  | 1074 | 006 | 007 | 045 | 000 | 250 | 407 | 296 |
| N202   | 296     | 2    | 1     | 019  | 0505 | 006 | 006 | 029 | 000 | 041 | 391 | 296 |
| N202   | 296     | 2    | 0     | 019  | 0000 | 006 | 006 | 036 | 000 | 257 | 389 | 296 |
| N202   | 296     | 2    | 0     | 017  | 0000 | 006 | 006 | 019 | 000 | 079 | 374 | 296 |
| N202   | 296     | 2    | 1     | 017  | 0555 | 006 | 006 | 022 | 001 | 892 | 390 | 296 |
| N202   | 296     | 2    | 1     | 017  | 0647 | 006 | 006 | 035 | 001 | 845 | 410 | 296 |
| N202   | 296     | 2    | 2     | 019  | 1074 | 006 | 006 | 036 | 001 | 003 | 430 | 296 |
| N202   | 296     | 2    | 2     | 018  | 1317 | 054 | 010 | 019 | 001 | 009 | 440 | 296 |
| N202   | 296     | 2    | 3     | 017  | 1955 | 039 | 011 | 019 | 001 | 242 | 451 | 296 |
| N202   | 296     | 2    | 3     | 017  | 2327 | 035 | 011 | 015 | 001 | 140 | 456 | 296 |
| N202   | 296     | 2    | 4     | 016  | 3246 | 200 | 012 | 007 | 001 | 636 | 474 | 296 |
| N202   | 296     | 2    | 5     | 015  | 4506 | 567 | 014 | 000 | 002 | 265 | 484 | 296 |
| N202   | 296     | 2    | 6     | 015  | 5500 | 106 | 014 | 005 | 003 | 553 | 490 | 296 |
| N202   | 296     | 2    | 7     | 016  | 7500 | 305 | 014 | 009 | 003 | 232 | 493 | 296 |
| N202   | 296     | 2    | 8     | 015  | 9705 | 305 | 014 | 029 | 004 | 450 | 493 | 296 |
| N202   | 296     | 2    | 10    | 017  | 1336 | 675 | 029 | 069 | 004 | 602 | 507 | 296 |
| N202   | 296     | 2    | 11    | 020  | 1133 | 123 | 029 | 091 | 004 | 752 | 507 | 296 |
| N202   | 297     | 2    | 3     | 016  | 1574 | 004 | 006 | 122 | 000 | 039 | 654 | 297 |
| N202   | 297     | 2    | 2     | 016  | 1123 | 004 | 006 | 024 | 000 | 516 | 654 | 297 |
| N202   | 297     | 2    | 2     | 016  | 1043 | 009 | 006 | 014 | 000 | 196 | 654 | 297 |
| N202   | 297     | 2    | 1     | 017  | 0526 | 015 | 011 | 010 | 000 | 029 | 654 | 297 |
| N202   | 297     | 2    | 0     | 017  | 0000 | 027 | 011 | 009 | 000 | 000 | 654 | 297 |
| N202   | 297     | 2    | 0     | 017  | 0242 | 045 | 012 | 003 | 000 | 098 | 654 | 297 |
| N202   | 297     | 2    | 1     | 017  | 0642 | 060 | 012 | 003 | 001 | 074 | 654 | 297 |
| N202   | 297     | 2    | 1     | 020  | 1040 | 000 | 012 | 014 | 001 | 001 | 654 | 297 |
| N202   | 297     | 2    | 2     | 019  | 1627 | 033 | 012 | 005 | 001 | 256 | 654 | 297 |
| N202   | 297     | 2    | 3     | 017  | 2327 | 023 | 012 | 005 | 001 | 110 | 654 | 297 |
| N202   | 297     | 2    | 3     | 017  | 2327 | 055 | 012 | 005 | 001 | 027 | 654 | 297 |
| N202   | 297     | 2    | 4     | 017  | 2442 | 273 | 012 | 010 | 001 | 043 | 654 | 297 |
| N202   | 297     | 2    | 5     | 017  | 3442 | 633 | 012 | 003 | 002 | 037 | 654 | 297 |
| N202   | 297     | 2    | 6     | 017  | 4542 | 105 | 012 | 003 | 002 | 037 | 654 | 297 |
| N202   | 297     | 2    | 7     | 016  | 5542 | 140 | 012 | 003 | 003 | 037 | 654 | 297 |
| N202   | 297     | 2    | 8     | 016  | 7542 | 344 | 012 | 003 | 003 | 037 | 654 | 297 |
| N202   | 297     | 2    | 10    | 020  | 1121 | 123 | 012 | 024 | 003 | 037 | 654 | 297 |







| CONFIG    | PART NO | MACH | ALPHA | BETA | CN    | CLM     | CY   | CLN  | CLL  | XCP    | CAT | CAF |
|-----------|---------|------|-------|------|-------|---------|------|------|------|--------|-----|-----|
| N23M11A11 | 300     | 2    | 0.000 | 0.11 | 0.002 | 0.003   | 0.15 | 0.49 | 0.01 | -0.000 | 221 | 170 |
| N23M11A11 | 300     | 2    | 1.500 | 0.09 | 0.024 | 0.025   | 0.15 | 0.49 | 0.01 | 1.117  | 221 | 160 |
| N23M11A11 | 300     | 2    | 1.500 | 0.02 | 0.071 | 0.071   | 0.15 | 0.49 | 0.01 | 1.996  | 221 | 179 |
| N23M11A11 | 300     | 2    | 1.500 | 0.04 | 0.12  | 0.164   | 0.15 | 0.49 | 0.01 | 1.778  | 221 | 169 |
| N23M11A11 | 300     | 2    | 1.500 | 0.05 | 0.11  | 0.234   | 0.15 | 0.49 | 0.02 | 1.634  | 221 | 190 |
| N23M11A11 | 300     | 2    | 3.500 | 0.05 | 0.13  | 0.34    | 0.16 | 0.49 | 0.02 | 1.261  | 221 | 212 |
| N23M11A11 | 300     | 2    | 3.500 | 0.05 | 0.16  | 0.44    | 0.16 | 0.49 | 0.02 | 1.701  | 221 | 207 |
| N23M11A11 | 300     | 2    | 5.000 | 0.05 | 0.29  | 0.219   | 0.17 | 0.49 | 0.02 | 1.726  | 221 | 223 |
| N23M11A11 | 300     | 2    | 7.000 | 0.02 | 0.59  | 0.584   | 0.17 | 0.49 | 0.03 | 1.405  | 221 | 237 |
| N23M11A11 | 300     | 2    | 9.000 | 0.27 | 0.902 | -1.0634 | 0.15 | 0.49 | 0.04 | 1.812  | 221 | 239 |
| N23M11A11 | 301     | 2    | 0.000 | 0.15 | 0.005 | 0.001   | 0.00 | 0.20 | 0.01 | 0.000  | 221 | 206 |
| N23M11A11 | 301     | 2    | 1.500 | 0.05 | 0.063 | 0.091   | 0.00 | 0.20 | 0.01 | 0.996  | 221 | 209 |
| N23M11A11 | 301     | 2    | 1.500 | 0.08 | 0.090 | 0.100   | 0.00 | 0.20 | 0.01 | 1.428  | 221 | 230 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.067 | 0.059   | 0.00 | 0.20 | 0.01 | 1.525  | 221 | 299 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.129 | 0.153   | 0.10 | 0.20 | 0.01 | 1.111  | 221 | 310 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.150 | 0.151   | 0.10 | 0.20 | 0.01 | 1.665  | 221 | 122 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.227 | 0.17    | 0.12 | 0.20 | 0.01 | 1.655  | 221 | 245 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.346 | 0.17    | 0.16 | 0.20 | 0.01 | 1.697  | 221 | 140 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.590 | 0.364   | 0.20 | 0.20 | 0.02 | 1.600  | 221 | 234 |
| N23M11A11 | 301     | 2    | 1.500 | 0.00 | 0.935 | -1.364  | 0.22 | 0.20 | 0.03 | 1.909  | 221 | 239 |
| N23M11A11 | 302     | 2    | 0.000 | 0.17 | 0.000 | 0.000   | 0.00 | 0.10 | 0.00 | 0.000  | 221 | 506 |
| N23M11A11 | 302     | 2    | 1.500 | 0.05 | 0.052 | 0.05    | 0.00 | 0.10 | 0.00 | 0.596  | 221 | 500 |
| N23M11A11 | 302     | 2    | 1.500 | 0.15 | 0.090 | 0.120   | 0.00 | 0.10 | 0.00 | 1.555  | 221 | 513 |
| N23M11A11 | 302     | 2    | 1.500 | 0.00 | 0.121 | 0.14    | 0.00 | 0.10 | 0.00 | 1.955  | 221 | 523 |
| N23M11A11 | 302     | 2    | 1.500 | 0.00 | 0.149 | 0.19    | 0.00 | 0.10 | 0.00 | 1.569  | 221 | 539 |
| N23M11A11 | 302     | 2    | 1.500 | 0.05 | 0.310 | 0.19    | 0.00 | 0.10 | 0.01 | 1.669  | 221 | 547 |
| N23M11A11 | 302     | 2    | 1.500 | 0.16 | 0.463 | 0.34    | 0.00 | 0.09 | 0.01 | 1.392  | 221 | 562 |
| N23M11A11 | 302     | 2    | 1.500 | 0.01 | 0.573 | -1.333  | 0.00 | 0.00 | 0.02 | 1.471  | 221 | 552 |
| N23M11A11 | 302     | 2    | 1.500 | 0.19 | 0.912 | -1.944  | 0.00 | 0.00 | 0.02 | 1.133  | 221 | 555 |



[illegible]



| CONFIG | PART NO | MACH   | ALPHA | BETA | CN  | CLM  | CY     | CLN | CLL | XCP | CAT | CAT |
|--------|---------|--------|-------|------|-----|------|--------|-----|-----|-----|-----|-----|
| M5A117 | 306     | 000000 | 0     | 101  | 160 | 051  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 102  | 161 | 106  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 102  | 162 | 096  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 102  | 163 | 096  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 102  | 164 | 074  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 102  | 165 | 063  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 101  | 166 | 040  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 101  | 167 | 037  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 101  | 168 | 019  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 100  | 169 | 000  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 100  | 170 | 011  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 099  | 171 | 029  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 099  | 172 | 037  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 097  | 173 | 047  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 097  | 174 | 055  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 096  | 175 | 055  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 094  | 176 | 030  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 093  | 177 | 030  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 091  | 178 | 090  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 091  | 179 | 095  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 090  | 180 | 303  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 089  | 181 | 500  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 089  | 182 | 683  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 088  | 183 | 949  | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 088  | 184 | 1504 | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 185 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 186 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 187 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 188 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 189 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 190 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 191 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 192 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 193 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 194 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 195 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 196 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 197 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 198 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 199 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 200 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 201 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 202 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 203 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 204 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 205 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 206 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 207 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 208 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 209 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 210 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 211 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 212 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 213 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 214 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 215 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 216 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 217 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 218 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 219 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 220 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 221 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 222 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 223 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 224 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 225 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 226 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 227 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 228 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 229 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 230 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 231 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 232 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 233 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 234 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 235 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 236 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 237 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 238 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 239 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 240 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 241 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 242 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 243 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 244 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 245 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 246 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 247 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 248 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 249 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 250 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 251 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 252 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 253 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 254 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 255 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 256 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 257 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 258 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 259 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 260 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 261 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 262 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 263 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 264 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 265 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 266 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 267 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     | 086  | 268 | -1   | 000000 | 005 | 000 | 169 | 160 | 160 |
| M5A117 | 306     | 000000 | 0     |      |     |      |        |     |     |     |     |     |







[illegible]



| CONFIG | PART NO | MACH | ALPHA | BETA | CN  | CLM | CY  | CLN | CLL | XCP | CAT | CAF |
|--------|---------|------|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| NI33   | 444     | MM   | -5    | .05  | 3.2 | 9.1 | 9.6 | 2.5 | 0.0 | 1.0 | 7.1 | 0.0 |
| NI33   | 444     | MM   | -5    | .06  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | -3    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | -2    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | -2    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | -1    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | -1    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 0     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 0     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 2     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 2     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 3     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 3     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 4     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 4     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 5     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 5     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 6     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 6     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 7     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 7     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 8     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 8     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 9     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 9     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 10    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 10    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 11    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 11    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 12    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 12    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 13    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 13    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 14    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 14    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 15    | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   | 1     | .05  | 3.2 | 9.2 | 9.7 | 2.5 | 0.0 | 1.0 | 6.5 | 0.0 |
| NI33   | 444     | MM   |       |      |     |     |     |     |     |     |     |     |







[illegible]







| CONFIG | PART NO | MACH | ALPHA  | BETA | CN   | CLM  | CV   | CLN  | CLL  | XCP  | CAT | CAF |
|--------|---------|------|--------|------|------|------|------|------|------|------|-----|-----|
| N21    | 222     | 333  | -5.000 | .097 | 385  | 274  | .021 | .021 | .002 | 711  | 640 | 590 |
| N21    | 222     | 333  | -4.500 | .097 | 216  | 163  | .018 | .018 | .001 | 548  | 635 | 587 |
| N21    | 222     | 333  | -3.500 | .097 | 183  | 117  | .017 | .017 | .001 | 339  | 620 | 585 |
| N21    | 222     | 333  | -2.500 | .097 | 121  | 93   | .016 | .016 | .001 | 145  | 611 | 583 |
| N21    | 222     | 333  | -2.500 | .096 | 107  | 82   | .016 | .016 | .001 | 092  | 603 | 582 |
| N21    | 222     | 333  | -1.500 | .097 | 042  | 33   | .016 | .016 | .002 | 039  | 603 | 580 |
| N21    | 222     | 333  | 0.500  | .097 | 026  | 22   | .017 | .017 | .002 | 154  | 601 | 579 |
| N21    | 222     | 333  | 1.500  | .097 | 045  | 69   | .017 | .017 | .002 | 317  | 601 | 582 |
| N21    | 222     | 333  | 1.500  | .097 | 065  | 95   | .017 | .017 | .002 | 108  | 603 | 582 |
| N21    | 222     | 333  | 2.500  | .094 | 122  | 11   | .017 | .017 | .001 | 089  | 613 | 582 |
| N21    | 222     | 333  | 3.500  | .094 | 151  | 37   | .017 | .017 | .001 | 182  | 617 | 587 |
| N21    | 222     | 333  | 4.500  | .094 | 219  | 98   | .019 | .019 | .001 | 270  | 624 | 587 |
| N21    | 222     | 333  | 5.000  | .094 | 296  | 163  | .022 | .022 | .001 | 356  | 631 | 587 |
| N21    | 222     | 333  | 6.000  | .094 | 382  | 239  | .025 | .025 | .001 | 505  | 644 | 599 |
| N21    | 222     | 333  | 7.000  | .098 | 491  | 354  | .025 | .025 | .001 | 795  | 651 | 601 |
| N21    | 222     | 333  | 8.000  | .097 | 645  | 534  | .026 | .026 | .001 | 975  | 664 | 603 |
| N21    | 222     | 333  | 9.000  | .096 | 847  | 762  | .030 | .030 | .000 | 1221 | 664 | 603 |
| N21    | 222     | 333  | 10.000 | .096 | 1267 | 1089 | .030 | .030 | .000 | 1414 | 674 | 605 |
| N21    | 222     | 333  | 11.000 | .095 | 1749 | 1560 | .031 | .031 | .001 | 1533 | 676 | 606 |
| N22    | 222     | 333  | -5.000 | .094 | 385  | 274  | .021 | .021 | .002 | 711  | 640 | 590 |
| N22    | 222     | 333  | -4.500 | .097 | 216  | 163  | .018 | .018 | .001 | 548  | 635 | 587 |
| N22    | 222     | 333  | -3.500 | .097 | 183  | 117  | .017 | .017 | .001 | 339  | 620 | 585 |
| N22    | 222     | 333  | -2.500 | .097 | 121  | 93   | .016 | .016 | .001 | 145  | 611 | 583 |
| N22    | 222     | 333  | -2.500 | .096 | 107  | 82   | .016 | .016 | .001 | 092  | 603 | 582 |
| N22    | 222     | 333  | -1.500 | .097 | 042  | 33   | .016 | .016 | .002 | 039  | 603 | 580 |
| N22    | 222     | 333  | 0.500  | .097 | 026  | 22   | .017 | .017 | .002 | 154  | 601 | 579 |
| N22    | 222     | 333  | 1.500  | .097 | 045  | 69   | .017 | .017 | .002 | 317  | 601 | 582 |
| N22    | 222     | 333  | 1.500  | .097 | 065  | 95   | .017 | .017 | .002 | 108  | 603 | 582 |
| N22    | 222     | 333  | 2.500  | .094 | 122  | 11   | .017 | .017 | .001 | 089  | 613 | 582 |
| N22    | 222     | 333  | 3.500  | .094 | 151  | 37   | .017 | .017 | .001 | 182  | 617 | 587 |
| N22    | 222     | 333  | 4.500  | .094 | 219  | 98   | .019 | .019 | .001 | 270  | 624 | 587 |
| N22    | 222     | 333  | 5.000  | .094 | 296  | 163  | .022 | .022 | .001 | 356  | 631 | 587 |
| N22    | 222     | 333  | 6.000  | .094 | 382  | 239  | .025 | .025 | .001 | 505  | 644 | 599 |
| N22    | 222     | 333  | 7.000  | .098 | 491  | 354  | .025 | .025 | .001 | 795  | 651 | 601 |
| N22    | 222     | 333  | 8.000  | .097 | 645  | 534  | .026 | .026 | .001 | 975  | 664 | 603 |
| N22    | 222     | 333  | 9.000  | .096 | 847  | 762  | .030 | .030 | .000 | 1221 | 664 | 603 |
| N22    | 222     | 333  | 10.000 | .096 | 1267 | 1089 | .030 | .030 | .000 | 1414 | 674 | 605 |
| N22    | 222     | 333  | 11.000 | .095 | 1749 | 1560 | .031 | .031 | .001 | 1533 | 676 | 606 |
| N23    | 222     | 333  | -5.000 | .094 | 385  | 274  | .021 | .021 | .002 | 711  | 640 | 590 |
| N23    | 222     | 333  | -4.500 | .097 | 216  | 163  | .018 | .018 | .001 | 548  | 635 | 587 |
| N23    | 222     | 333  | -3.500 | .097 | 183  | 117  | .017 | .017 | .001 | 339  | 620 | 585 |
| N23    | 222     | 333  | -2.500 | .097 | 121  | 93   | .016 | .016 | .001 | 145  | 611 | 583 |
| N23    | 222     | 333  | -2.500 | .096 | 107  | 82   | .016 | .016 | .001 | 092  | 603 | 582 |
| N23    | 222     | 333  | -1.500 | .097 | 042  | 33   | .016 | .016 | .002 | 039  | 603 | 580 |
| N23    | 222     | 333  | 0.500  | .097 | 026  | 22   | .017 | .017 | .002 | 154  | 601 | 579 |
| N23    | 222     | 333  | 1.500  | .097 | 045  | 69   | .017 | .017 | .002 | 317  | 601 | 582 |
| N23    | 222     | 333  | 1.500  | .097 | 065  | 95   | .017 | .017 | .002 | 108  | 603 | 582 |
| N23    | 222     | 333  | 2.500  | .094 | 122  | 11   | .017 | .017 | .001 | 089  | 613 | 582 |
| N23    | 222     | 333  | 3.500  | .094 | 151  | 37   | .017 | .017 | .001 | 182  | 617 | 587 |
| N23    | 222     | 333  | 4.500  | .094 | 219  | 98   | .019 | .019 | .001 | 270  | 624 | 587 |
| N23    | 222     | 333  | 5.000  | .094 | 296  | 163  | .022 | .022 | .001 | 356  | 631 | 587 |
| N23    | 222     | 333  | 6.000  | .094 | 382  | 239  | .025 | .025 | .001 | 505  | 644 | 599 |
| N23    | 222     | 333  | 7.000  | .098 | 491  | 354  | .025 | .025 | .001 | 795  | 651 | 601 |
| N23    | 222     | 333  | 8.000  | .097 | 645  | 534  | .026 | .026 | .001 | 975  | 664 | 603 |
| N23    | 222     | 333  | 9.000  | .096 | 847  | 762  | .030 | .030 | .000 | 1221 | 664 | 603 |
| N23    | 222     | 333  | 10.000 | .096 | 1267 | 1089 | .030 | .030 | .000 | 1414 | 674 | 605 |
| N23    | 222     | 333  | 11.000 | .095 | 1749 | 1560 | .031 | .031 | .001 | 1533 | 676 | 606 |



[illegible]



| CONFIG | PART NO | MACH | ALPHA   | BETA | CN   | CLM  | CY   | CLN  | CLL  | XCP | CAT  | CAF  |
|--------|---------|------|---------|------|------|------|------|------|------|-----|------|------|
| N25    | 25      | MM   | -6.000  | .095 | 397  | 142  | .019 | .029 | .000 | 37  | .609 | .569 |
| N25    | 25      | MM   | -5.500  | .095 | 291  | 152  | .014 | .014 | .000 | 46  | .594 | .554 |
| N25    | 25      | MM   | -3.500  | .095 | 185  | 163  | .014 | .014 | .000 | 13  | .590 | .554 |
| N25    | 25      | MM   | -2.500  | .095 | 126  | 179  | .013 | .013 | .000 | 20  | .582 | .553 |
| N25    | 25      | MM   | -1.500  | .095 | 70   | 191  | .014 | .012 | .000 | 9   | .574 | .553 |
| N25    | 25      | MM   | -1.500  | .095 | 46   | 203  | .014 | .011 | .000 | 7   | .573 | .552 |
| N25    | 25      | MM   | 0.500   | .097 | 22   | 210  | .009 | .009 | .000 | 1   | .571 | .551 |
| N25    | 25      | MM   | 1.500   | .097 | 6    | 220  | .007 | .007 | .000 | 4   | .570 | .549 |
| N25    | 25      | MM   | 1.500   | .098 | 66   | 230  | .006 | .006 | .001 | 5   | .570 | .549 |
| N25    | 25      | MM   | 2.500   | .098 | 63   | 245  | .007 | .006 | .001 | 1   | .571 | .549 |
| N25    | 25      | MM   | 3.500   | .098 | 37   | 257  | .007 | .007 | .001 | 6   | .565 | .551 |
| N25    | 25      | MM   | 4.500   | .099 | 16   | 269  | .005 | .005 | .001 | 1   | .565 | .553 |
| N25    | 25      | MM   | 5.000   | .100 | 22   | 281  | .005 | .005 | .001 | 1   | .560 | .553 |
| N25    | 25      | MM   | 6.000   | .100 | 36   | 290  | .004 | .004 | .001 | 2   | .564 | .564 |
| N25    | 25      | MM   | 7.000   | .101 | 50   | 305  | .004 | .004 | .001 | 2   | .573 | .573 |
| N25    | 25      | MM   | 8.000   | .101 | 63   | 319  | .005 | .003 | .001 | 5   | .573 | .573 |
| N25    | 25      | MM   | 9.000   | .101 | 73   | 335  | .005 | .003 | .000 | 9   | .577 | .577 |
| N25    | 25      | MM   | 10.000  | .100 | 83   | 349  | .005 | .040 | .000 | 9   | .577 | .580 |
| N25    | 25      | MM   | 11.000  | .100 | 93   | 365  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 12.000  | .100 | 103  | 380  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 13.000  | .100 | 113  | 395  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 14.000  | .100 | 123  | 410  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 15.000  | .100 | 133  | 425  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 16.000  | .100 | 143  | 440  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 17.000  | .100 | 153  | 455  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 18.000  | .100 | 163  | 470  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 19.000  | .100 | 173  | 485  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 20.000  | .100 | 183  | 500  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 21.000  | .100 | 193  | 515  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 22.000  | .100 | 203  | 530  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 23.000  | .100 | 213  | 545  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 24.000  | .100 | 223  | 560  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 25.000  | .100 | 233  | 575  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 26.000  | .100 | 243  | 590  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 27.000  | .100 | 253  | 605  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 28.000  | .100 | 263  | 620  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 29.000  | .100 | 273  | 635  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 30.000  | .100 | 283  | 650  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 31.000  | .100 | 293  | 665  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 32.000  | .100 | 303  | 680  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 33.000  | .100 | 313  | 695  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 34.000  | .100 | 323  | 710  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 35.000  | .100 | 333  | 725  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 36.000  | .100 | 343  | 740  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 37.000  | .100 | 353  | 755  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 38.000  | .100 | 363  | 770  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 39.000  | .100 | 373  | 785  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 40.000  | .100 | 383  | 800  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 41.000  | .100 | 393  | 815  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 42.000  | .100 | 403  | 830  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 43.000  | .100 | 413  | 845  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 44.000  | .100 | 423  | 860  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 45.000  | .100 | 433  | 875  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 46.000  | .100 | 443  | 890  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 47.000  | .100 | 453  | 905  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 48.000  | .100 | 463  | 920  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 49.000  | .100 | 473  | 935  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 50.000  | .100 | 483  | 950  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 51.000  | .100 | 493  | 965  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 52.000  | .100 | 503  | 980  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 53.000  | .100 | 513  | 995  | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 54.000  | .100 | 523  | 1010 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 55.000  | .100 | 533  | 1025 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 56.000  | .100 | 543  | 1040 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 57.000  | .100 | 553  | 1055 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 58.000  | .100 | 563  | 1070 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 59.000  | .100 | 573  | 1085 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 60.000  | .100 | 583  | 1100 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 61.000  | .100 | 593  | 1115 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 62.000  | .100 | 603  | 1130 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 63.000  | .100 | 613  | 1145 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 64.000  | .100 | 623  | 1160 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 65.000  | .100 | 633  | 1175 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 66.000  | .100 | 643  | 1190 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 67.000  | .100 | 653  | 1205 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 68.000  | .100 | 663  | 1220 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 69.000  | .100 | 673  | 1235 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 70.000  | .100 | 683  | 1250 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 71.000  | .100 | 693  | 1265 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 72.000  | .100 | 703  | 1280 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 73.000  | .100 | 713  | 1295 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 74.000  | .100 | 723  | 1310 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 75.000  | .100 | 733  | 1325 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 76.000  | .100 | 743  | 1340 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 77.000  | .100 | 753  | 1355 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 78.000  | .100 | 763  | 1370 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 79.000  | .100 | 773  | 1385 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 80.000  | .100 | 783  | 1400 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 81.000  | .100 | 793  | 1415 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 82.000  | .100 | 803  | 1430 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 83.000  | .100 | 813  | 1445 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 84.000  | .100 | 823  | 1460 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 85.000  | .100 | 833  | 1475 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 86.000  | .100 | 843  | 1490 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 87.000  | .100 | 853  | 1505 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 88.000  | .100 | 863  | 1520 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 89.000  | .100 | 873  | 1535 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 90.000  | .100 | 883  | 1550 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 91.000  | .100 | 893  | 1565 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 92.000  | .100 | 903  | 1580 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 93.000  | .100 | 913  | 1595 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 94.000  | .100 | 923  | 1610 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 95.000  | .100 | 933  | 1625 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 96.000  | .100 | 943  | 1640 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 97.000  | .100 | 953  | 1655 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 98.000  | .100 | 963  | 1670 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 99.000  | .100 | 973  | 1685 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 100.000 | .100 | 983  | 1700 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 101.000 | .100 | 993  | 1715 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 102.000 | .100 | 1003 | 1730 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 103.000 | .100 | 1013 | 1745 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 104.000 | .100 | 1023 | 1760 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 105.000 | .100 | 1033 | 1775 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 106.000 | .100 | 1043 | 1790 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 107.000 | .100 | 1053 | 1805 | .005 | .043 | .000 | 9   | .640 | .579 |
| N25    | 25      | MM   | 108.000 | .1   |      |      |      |      |      |     |      |      |



| CONFIG | PART NO | MACH | ALPHA | BETA | CN  | CLM | CY  | CLN | CLL | XCP  | CAT | CAF |
|--------|---------|------|-------|------|-----|-----|-----|-----|-----|------|-----|-----|
| N30    | MSA17   | 3    | 0     | 093  | 450 | 335 | 021 | 032 | 000 | 746  | 243 | 107 |
| N30    | MSA17   | 3    | 0     | 094  | 347 | 205 | 020 | 032 | 000 | 593  | 232 | 100 |
| N30    | MSA17   | 3    | 0     | 094  | 217 | 111 | 019 | 032 | 000 | 432  | 222 | 100 |
| N30    | MSA17   | 3    | 0     | 094  | 147 | 072 | 018 | 032 | 000 | 335  | 216 | 100 |
| N30    | MSA17   | 3    | 0     | 095  | 114 | 028 | 016 | 032 | 000 | 167  | 202 | 100 |
| N30    | MSA17   | 3    | 0     | 095  | 085 | 002 | 016 | 032 | 000 | 019  | 199 | 100 |
| N30    | MSA17   | 3    | 0     | 096  | 055 | 004 | 016 | 032 | 000 | 001  | 196 | 100 |
| N30    | MSA17   | 3    | 0     | 096  | 020 | 000 | 016 | 032 | 000 | 000  | 196 | 100 |
| N30    | MSA17   | 3    | 0     | 096  | 000 | 003 | 016 | 032 | 000 | 004  | 196 | 100 |
| N30    | MSA17   | 3    | 0     | 097  | 055 | 003 | 016 | 032 | 000 | 057  | 196 | 100 |
| N30    | MSA17   | 3    | 0     | 097  | 084 | 002 | 016 | 032 | 000 | 113  | 205 | 100 |
| N30    | MSA17   | 3    | 0     | 098  | 119 | 013 | 016 | 032 | 000 | 212  | 205 | 100 |
| N30    | MSA17   | 3    | 0     | 098  | 149 | 032 | 016 | 032 | 000 | 304  | 211 | 100 |
| N30    | MSA17   | 3    | 0     | 099  | 222 | 056 | 016 | 032 | 000 | 456  | 223 | 100 |
| N30    | MSA17   | 3    | 0     | 100  | 351 | 120 | 020 | 032 | 000 | 580  | 223 | 100 |
| N30    | MSA17   | 3    | 0     | 100  | 455 | 207 | 023 | 032 | 000 | 709  | 223 | 100 |
| N30    | MSA17   | 3    | 0     | 101  | 567 | 376 | 025 | 032 | 000 | 843  | 265 | 100 |
| N30    | MSA17   | 3    | 0     | 101  | 647 | 463 | 025 | 032 | 000 | 965  | 274 | 100 |
| N30    | MSA17   | 3    | 0     | 100  | 813 | 681 | 025 | 032 | 000 | 079  | 281 | 100 |
| N30    | MSA17   | 3    | 0     | 100  | 963 | 147 | 026 | 032 | 000 | 192  | 296 | 100 |
| N30    | MSA17   | 3    | 0     | 101  | 125 | 275 | 026 | 032 | 000 | 345  | 296 | 100 |
| N30    | MSA17   | 3    | 0     | 101  | 155 | 260 | 028 | 032 | 000 | 457  | 305 | 100 |
| N31    | MSA17   | 3    | 0     | 095  | 450 | 288 | 021 | 032 | 000 | 657  | 698 | 207 |
| N31    | MSA17   | 3    | 0     | 095  | 325 | 167 | 020 | 032 | 000 | 428  | 308 | 207 |
| N31    | MSA17   | 3    | 0     | 095  | 167 | 102 | 017 | 032 | 000 | 198  | 308 | 207 |
| N31    | MSA17   | 3    | 0     | 095  | 107 | 032 | 017 | 032 | 000 | 103  | 285 | 207 |
| N31    | MSA17   | 3    | 0     | 095  | 056 | 015 | 016 | 032 | 000 | 103  | 285 | 207 |
| N31    | MSA17   | 3    | 0     | 096  | 025 | 005 | 017 | 032 | 000 | 180  | 285 | 207 |
| N31    | MSA17   | 3    | 0     | 097  | 047 | 007 | 017 | 032 | 000 | 262  | 281 | 207 |
| N31    | MSA17   | 3    | 0     | 097  | 077 | 010 | 017 | 032 | 000 | 332  | 281 | 207 |
| N31    | MSA17   | 3    | 0     | 098  | 105 | 011 | 017 | 032 | 000 | 413  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 098  | 136 | 012 | 017 | 032 | 000 | 493  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 099  | 169 | 016 | 016 | 032 | 000 | 563  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 099  | 207 | 037 | 020 | 032 | 000 | 639  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 100  | 237 | 067 | 022 | 032 | 000 | 719  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 100  | 267 | 130 | 024 | 032 | 000 | 797  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 295 | 194 | 026 | 032 | 000 | 871  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 327 | 255 | 026 | 032 | 000 | 947  | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 357 | 294 | 026 | 032 | 000 | 1028 | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 387 | 338 | 026 | 032 | 000 | 1198 | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 419 | 368 | 030 | 032 | 000 | 1334 | 284 | 207 |
| N31    | MSA17   | 3    | 0     | 101  | 453 | 392 | 030 | 032 | 000 | 1457 | 284 | 207 |



[illegible]











| CONFID | PART NO | MACH | ALPHA | BETA | CN | CLM | CY | CLN | CLL | XCP | CAT | CAT |
|--------|---------|------|-------|------|----|-----|----|-----|-----|-----|-----|-----|
| N30    | 366666  | 2222 | 15    | 052  | 6  | 1   | 5  | 125 | 100 | 17  | 135 | 135 |
| N30    | 366666  | 4444 | 15    | 051  | 2  | 2   | 7  | 145 | 000 | 3   | 221 | 221 |
| N30    | 366666  | 4444 | 3     | 051  | 2  | 5   | 6  | 139 | 000 | 1   | 206 | 206 |
| N30    | 366666  | 4444 | 3     | 051  | 1  | 2   | 5  | 133 | 001 | 1   | 205 | 205 |
| N30    | 366666  | 4444 | 2     | 050  | 1  | 2   | 5  | 134 | 001 | 1   | 195 | 195 |
| N30    | 366666  | 4444 | 2     | 050  | 1  | 1   | 2  | 132 | 001 | 1   | 195 | 195 |
| N30    | 366666  | 4444 | 1     | 049  | 0  | 0   | 5  | 134 | 001 | 1   | 184 | 184 |
| N30    | 366666  | 4444 | 1     | 049  | 0  | 0   | 5  | 144 | 001 | 1   | 187 | 187 |
| N30    | 366666  | 4444 | 1     | 048  | 0  | 0   | 5  | 155 | 001 | 1   | 187 | 187 |
| N30    | 366666  | 4444 | 1     | 048  | 0  | 0   | 5  | 155 | 001 | 1   | 191 | 191 |
| N30    | 366666  | 4444 | 1     | 047  | 0  | 0   | 5  | 169 | 001 | 1   | 196 | 196 |
| N30    | 366666  | 4444 | 1     | 044  | 1  | 1   | 2  | 169 | 001 | 1   | 206 | 206 |
| N30    | 366666  | 4444 | 1     | 044  | 1  | 1   | 2  | 174 | 001 | 1   | 211 | 211 |
| N30    | 366666  | 4444 | 1     | 045  | 1  | 2   | 2  | 167 | 001 | 1   | 216 | 216 |
| N30    | 366666  | 4444 | 1     | 045  | 2  | 3   | 2  | 171 | 001 | 1   | 224 | 224 |
| N30    | 366666  | 4444 | 1     | 046  | 2  | 4   | 2  | 171 | 001 | 1   | 235 | 235 |
| N30    | 366666  | 4444 | 1     | 050  | 3  | 5   | 2  | 182 | 002 | 2   | 251 | 251 |
| N30    | 366666  | 4444 | 1     | 055  | 5  | 6   | 2  | 191 | 003 | 3   | 281 | 281 |
| N30    | 366666  | 4444 | 1     | 059  | 9  | 9   | 2  | 197 | 003 | 3   | 346 | 346 |
| N30    | 366666  | 4444 | 1     | 060  | 12 | 12  | 2  | 207 | 003 | 3   | 371 | 371 |
| N30    | 366666  | 4444 | 1     | 061  | 15 | 15  | 2  | 215 | 003 | 3   | 397 | 397 |
| N30    | 366666  | 4444 | 1     | 063  | 17 | 17  | 2  | 225 | 004 | 4   | 417 | 417 |
| N30    | 366666  | 4444 | 1     | 063  | 20 | 20  | 2  | 242 | 006 | 6   | 471 | 471 |
| N31    | 777777  | 2222 | 15    | 052  | 6  | 1   | 5  | 125 | 201 | 45  | 9   | 9   |
| N31    | 777777  | 4444 | 15    | 051  | 2  | 2   | 7  | 145 | 001 | 39  | 102 | 102 |
| N31    | 777777  | 4444 | 3     | 051  | 2  | 5   | 6  | 139 | 001 | 80  | 110 | 110 |
| N31    | 777777  | 4444 | 3     | 051  | 1  | 2   | 5  | 133 | 001 | 69  | 109 | 109 |
| N31    | 777777  | 4444 | 2     | 050  | 1  | 2   | 5  | 134 | 000 | 57  | 100 | 100 |
| N31    | 777777  | 4444 | 2     | 050  | 1  | 1   | 2  | 132 | 000 | 32  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 049  | 0  | 0   | 5  | 134 | 000 | 30  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 049  | 0  | 0   | 5  | 144 | 000 | 26  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 048  | 0  | 0   | 5  | 155 | 000 | 23  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 048  | 0  | 0   | 5  | 155 | 000 | 20  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 047  | 0  | 0   | 5  | 169 | 000 | 17  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 044  | 1  | 1   | 2  | 169 | 000 | 15  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 044  | 1  | 1   | 2  | 174 | 000 | 13  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 045  | 1  | 2   | 2  | 171 | 000 | 12  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 045  | 2  | 3   | 2  | 182 | 000 | 11  | 100 | 100 |
| N31    | 777777  | 4444 | 1     | 046  | 2  | 4   | 2  | 191 | 000 | 10  | 10  | 10  |







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